

Age and Hiring for High School Graduate Hispanics in the United States

By

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The intersection of age with ethnicity is understudied, particularly for labor force outcomes. We explore the labor market for Hispanic high school graduates in the United States by age using information from the US Census, American Community Survey, Current Population Survey, and three laboratory experiments with different populations. We find that the differences in outcomes for Hispanic and non-Hispanic high school graduates do not change across the lifecycle. Moving to a laboratory setting, we provided participants with randomized resumes for a clerical position that are, on average, equivalent except for name and age. In all experiments, applicants with Hispanic and non-Hispanic names were treated the same across the lifecycle. These findings are in stark contrast to the differences and patterns across the lifecycle for corresponding Black workers and job applicants. We argue that these null results may explain the much smaller literature on labor market discrimination against less-educated Hispanic workers.

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I. Introduction

The population of Hispanics in the United States has been steadily growing. In the 2020 Census, Hispanics accounted for 19% of the total population compared to 6.5% in 1980 (Flores et al., 2017; USA Facts, 2022). These increases have occurred among foreign-born and native-born populations, and more than half of Hispanics are native-born (USA Facts, 2022). Currently, the share of Hispanics in the United States is larger than that of Black people (Authors' calculations from the 2019 American Community Survey [ACS]). As their population grows, Hispanics have become an important engine of the US workforce, particularly in some occupations that face labor shortages after the COVID pandemic. As of January 2020, Hispanics represented 25.7 percent of employment in service occupations, 17.2 percent of sales and office occupations, 38.9 percent of construction and extraction occupations, 24 percent of production occupations, and 23.6 of transportation occupations (Bureau of Labor Statistics [BLS], 2020). Hispanics' importance in the workforce is compounded by the fact that they are a young population group. The median age of Hispanics in the US is still in the 20s. However, this age has steadily increased over time (Flores et al., 2017). Despite these increasing demographic and labor pressures, the work outcomes of Hispanics across the lifespan are understudied, making what happens to Hispanic workers as they age an increasingly important question for new research.

By some measures, Hispanic workers are doing better over the lifecycle than similarly educated White workers; lower-educated Hispanics enjoy higher employment and labor market participation than do similarly educated White non-Hispanics (Authors calculations from ACS). By other measures, however, they are doing worse, and these negative gaps between Hispanics and Non-Hispanics increase as these groups age. Earnings trajectories are lower for Hispanic men compared to non-Hispanic White men, particularly among the more educated (Tomaskovic-Devey et al., 2005). Hispanics are more likely than other groups to live in poverty at older ages and experience lower Social Security receipts (Hungerford et al., 2001). They also have a higher risk of being work-disabled at younger ages than White non-Hispanics in the HRS (Brown & Warner, 2008). A recent study looking at retirement pathways for workers age 50-75 finds that Black workers are consistently disadvantaged compared to White but the patterns are more complicated for Hispanic workers, with differences by gender and education (Moen et al., 2022).

This paper explores the labor market experiences of Hispanic American high school graduates over the lifecycle using two approaches across four studies. We use data from the US Census, ACS, and Current Population Survey (CPS) to document general equilibrium patterns² and potential differences between Hispanics and non-Hispanics. We then use results from one laboratory and two lab-in-the-field³ experiments to study discrimination against Hispanics over the lifecycle. As a forewarning—this is a null results paper. We do not find evidence of strong patterns of labor force differences between Hispanics and non-Hispanics by age or by cohort in the observational data. Similarly, in the field experiments, we do not find evidence of hiring discrimination against Hispanic high school graduates over the lifecycle in the first stage of the hiring process, the assessment of resumes.

In the first approach, we use publicly available data from the US Census, ACS, and matched monthly CPS to explore differences in standard labor market outcomes across time. Unlike previous work that finds stark patterns in the differences in the labor market outcomes for Black and White American high school graduates across age and time (Lahey, 2018), differences in these outcomes are much flatter across age for Hispanic and non-Hispanic Americans. Similarly, point-in-time data from a pre-pandemic ACS finds differences in outcomes across the lifecycle for some of the outcomes tested, but these differences do not increase or decrease with age.

In the second approach, we analyze three experiments designed to test for discrimination in the first stage of the hiring process. Because the design of labor market experiments using age requires a graduation date, we focus the attention in this paper on the outcomes of the largest education group in the US, those with high school education and no additional degrees. Depending on how people with some college are categorized, these groups comprise 28-53% of the Hispanic population and 26-47% of the non-Hispanic population age 25-75 (Authors' calculations from the 2019 ACS). This group is important from an external validity standpoint and, pragmatically, allows us to signal age via the high school graduation date. Similarly, although resume methods do not require that the hypothetical applicant be a US citizen, applicants must have graduated from

² General equilibrium patterns refer to patterns that show the final result from both the supply and demand sides of the market. The experimental results will show only the demand-side of the labor market, not the reactions of the supply side to demand conditions.

³ Gneezy & Imas (2017) define a lab-in-the-field experiment as an experiment “conducted in a naturalistic environment targeting the theoretically relevant population but using a standardized, validated lab paradigm.”

a US high school, increasing the likelihood of citizenship.⁴ We, therefore, focus our data work on the native-born population.

We first re-analyze data from two previous eye-tracking experiments that asked students (Experiment 1) and human resources (HR) managers (Experiment 2) to rate resumes with randomized inputs (including, but not limited to, graduation date and names) for a clerical position while tracking their eyes with an eye-tracking device. The ages listed on resumes (as indicated by the high school graduation date) ranged from the mid-30s to mid-70s, and 13% of resumes indicated Hispanic status by Hispanic last name only—no Hispanic first names were included in the sample. Generally, participants did not treat resumes with Hispanic and non-Hispanic resumes differently for the different age groups. In contrast, using the *same* experiment (Experiment 1), Lahey and Oxley (2021) find strong evidence of hiring discrimination against Black high school graduates that varies over the lifecycle.⁵

We then executed a third lab-in-the-field experiment using a large sample of managers, clerical workers, and the general population from Amazon’s Mechanical Turk (mTurk)⁶ as our participant population. This experiment is specifically designed to study discrimination against Hispanics in the US labor market. We again asked participants to rate resumes for a clerical position. In this study, we expanded indicators of Hispanic status to include Hispanic first names and last names, added indicators on resumes to contradict or reinforce Hispanic stereotypes, and asked questions about specific aspects of each worker, such as the need for supervision and communication skills. As with the previous experiments, we find little evidence that Hispanic applicants are treated differently than non-Hispanics across these age groups. Finally, we complement Experiment 3 with another intervention in mTurk to ask more specific questions about the Hispanic status and socioeconomic status signaled by names. We find evidence that the mTurk population can generally infer ethnicity from a name, but five distinctively Hispanic names are consistently

⁴ Using 2012-2016 data, Zong & Batalova (2019) estimate that approximately 80,500 undocumented Hispanic students graduate from US high schools every year. For the same years as the study, the National Center for Educational Statistics reports that approximately 672,490 Hispanic students graduated. Thus, undocumented Hispanic graduates account for about 12% of all Hispanic high school graduates during that time frame. It should also be noted that employers would see that most of the resumes in our sample show US work histories.

⁵ Note that this experiment had a larger percentage of Hispanic names than it did Black names.

⁶ Amazon’s Mechanical Turk is, in their words, “a crowdsourcing marketplace.” It can be found on <https://www.mturk.com/>. For references on using mTurk for research see Horton et al. (2011), Arechar et al. (2018), de Quidt et al. (2018), Mummolo & Peterson (2019), and Johnson & Ryan (2020).

misidentified as non-Hispanic. The results in Experiment 3 are robust to excluding these names. Similarly, controlling for the perceived socioeconomic status of first and last names does not affect Experiment 3's conclusions.

The two approaches complement each other. The observational data allow us to document general equilibrium patterns and potential differences between Hispanics and non-Hispanics. However, in existing surveys, Hispanic status is not consistent over time because of changes in the questionnaires and coding. Factors like xenophobia and citizenship status affect how individuals respond to race and ethnicity questions in surveys. Also, ethnic self-identification changes across generations; Duncan and Trejo (2011) show that a substantial share of third-generation Mexican Americans no longer self-identify as Hispanic Mexicans. Finally, survey data cannot identify discrimination against Hispanics and how it potentially changes over age.

The experimental approach allows us to signal Hispanic status clearly and to test for discrimination. However, to be able to signal age with graduation date, the experimental design limits us to studying an educational sub-population; the absence of discrimination for high school graduates does not imply that discrimination does not exist for less and more educated Hispanics. Additionally, resume studies can only investigate the first stage of the hiring process, that of resume screening.⁷ Discrimination may still be present in the interview phase or the wage offers. Still, the first stage of hiring is an important one, for which discrimination has been found for many underrepresented groups.

This paper contributes to our understanding of labor market discrimination against Hispanics by showing no significant differences between U.S. Hispanics and non-Hispanics who only have a high school degree with public data and for resume screening with three experiments conducted with different populations. First, publicly available data show no stark differences in labor market outcomes between Hispanics and non-Hispanics as they age. Second, experimental data from three

⁷ Also, in the first two experiments, participants knew they were in an experiment and may have been subject to social desirability bias, although Lahey & Oxley (2021) find strong evidence of discrimination against Black hypothetical applicants that changes over the lifecycle in Experiment 1, suggesting this bias would have to be limited. Experiment 2 shows similar patterns, but the sample size of Black names is not large enough to say anything definitive. In the mTurk experiment, participants thought they were screening real resumes for a real Houston-area firm until after they completed the experiment. Still, it is possible that they might have made different decisions if they were going to be directly affected by their choices, as might be the case in an audit study or real hiring situation. That said, outsourcing the initial resume screen is becoming more common (Cappelli 2019).

different populations suggest the absence of hiring discrimination against Hispanics in the first stage of hiring at middle and older ages. Although each of these approaches may be imperfect, together, they suggest that, unlike the case for similarly educated Black Americans (Lahey, 2018; Lahey & Oxley, 2021), Hispanic Americans with high school degrees from the US (but without additional degree) are treated similarly in the first stage of hiring across middle and older ages.

We believe that these null results are important. In contrast to the work on the labor supply of young Black men (see Lahey & Oxley (2021) for a literature review) or the work on health differences across the lifecycle for Hispanic people (e.g., Ruiz et al., 2013), there is remarkably little work on labor supply differences of Hispanic people, particularly across the lifecycle. Often what we know quantitatively about the Hispanic experience is included alongside information for other races rather than being centered as a topic of interest in its own right (e.g., Tomaskovic-Devey et al., 2005, Hirsch & Winters, 2014, Chetty et al., 2020, Moen et al., 2022). It is important for researchers and policy makers to know whether a topic has not been addressed in published work because nobody has addressed the topic or because of publication bias. As a caveat, we are only studying a slice of the Hispanic labor market in the US (those who graduated from US high schools) and the first stage of the hiring process, and as such, this paper does not address labor market differences and discrimination against Hispanics outside of that slice. We hope this paper will encourage others to fill in more of our knowledge gaps.

II. Literature Review

Observational studies suggest that the employment and wage gaps between Hispanics and non-Hispanic Whites are closing. An early paper by Trejo (1997) finds an employment gap between Mexican-Hispanic and non-Hispanic White men during the late 1970s and 1980s. This gap does not close even for third-generation Mexican Hispanics. A more recent paper by Hirsch and Winters (2014) shows that the proportion of non-earners increased for Hispanic and White men between 2000 and 2010, but the gap between the two groups remained stable. Education accounts for half of the gap in 2000.

Consistent differences have been found for wages. Trejo (1997) finds a significant gap between Mexican-Hispanic and non-Hispanic White men that does not close between 1979 and 1989. The author finds that education, age, and English proficiency explain three-quarters of the gap. Hirsch

and Winters (2014) show that Hispanic men have similar earnings growth to White men over several decades. They find that age does not explain the Hispanic-White gap but that education and location are relevant factors. Hispanics' earnings are closer to Black earnings than White earnings. However, compared to White non-Hispanics, the earning gaps in percentiles have been relatively consistent since the 1980s, after the period documented by Trejo (1997). Tomaskovic-Devey et al. (2005) show that earnings trajectories are lower for Hispanic men compared to non-Hispanic White men, particularly among the more educated. Finally, Chetty et al. (2020) find that while Hispanics' current income distributions are still closer to those of Black people, White and Hispanic children have similar rates of intergenerational mobility. This finding implies that after controlling for parents' socioeconomic status, the income gap has been shrinking across generations. Current trends suggest an income disparity gap of 6 percentiles in the steady state, smaller than the steady state gap between Black and White individuals.

In summary, previous studies show stable employment gaps between Hispanic and non-Hispanic White men for various time periods. Education explains a large share of these gaps. There are persistent but narrowing income gaps for Hispanic men and women. In general, these studies do not consider how the Hispanic-White gap evolves with age or cohort, with the brief exception of the comparison in Hirsch and Winters (2014), which compares non-earnings rates by age for men in 2000 and 2010.

Evidence of labor market discrimination against Hispanic and Latinx job applicants is mixed (Gaddis, 2017). Early audit studies, in which hypothetical job applicants applied for real jobs, that found discrimination often used in-person audits that did not make the treatment and control groups identical. For example, one instructed their Hispanic applicants to use fake accents, another included only testers who were "foreign-looking/sounding," another used college students for the non-Hispanic but not Hispanic auditors, and some gave additional qualifications to Latinx resumes, which could result in over-qualification (see James & DelCastillo (1992) for a literature review).⁸ Even with these differences, these early audits only found discrimination in the in-person or phone component, not the resume component (e.g., Bendick et al., 1991; Cross et al.,

⁸ Education levels in these studies include high school, and in some cases, college degrees. Most, but not all, of these studies focus on the youth labor market for men, particularly the in-person audit studies.

1990; James & DelCastillo, 1992). Newer studies generally work to make the pools of treatment and control testers similar to each other, and, except for Pager et al. (2009), which focuses only on Puerto Rican applicants in New York City,⁹ do not find evidence of labor market discrimination against Hispanic/Latinx job applicants (Darolia et al., 2016; Decker et al., 2015; Kleykamp, 2009). A meta-analysis by Quillian et al. (2017) thus finds a modest decline in discrimination against Latinos as measured by labor market audit studies.¹⁰ These studies focus on specific age groups and do not consider if discrimination varies with age.

Negative stereotypes might explain discrimination against Hispanic job applicants in the labor market. For example, there are beliefs that Hispanics are less likely to be documented workers, have poor communication skills, need more supervision, are lazy, and tend to have many children (Dixon & Rosenbaum, 2004; Dong & Murrillo, 2007; Jackson, 1995; Jones, 1991; Markert, 2004; Ramirez Berg, 1990).¹¹ These stereotypes may vary by age. For example, older Hispanic applicants may be more likely to have previously become US citizens under amnesty (Immigration Reform and Control Act, 1986). Communication skills may be better for younger cohorts, or they may have instead improved with time spent in the workforce. Beliefs that Hispanics have more children than non-Hispanics may be problematic for workers when the children are in the household but will be less of a concern as children age out of needing supervision. On the other hand, people of Hispanic ethnicity may be assumed to be bilingual, and knowledge of Spanish is particularly useful in the United States, making Hispanic applicants more attractive to employers.

III. Survey Data Analysis

As a first step to explore Hispanic/Non-Hispanic differences, we look at labor market outcomes between Hispanic and non-Hispanic high school graduates without an additional degree using several nationally representative surveys.¹² Our goal is not to provide a full exploration of which

⁹ Wojtkiewicz and Donato (1995) outline differences in educational attainment between Puerto Ricans born on the mainland US and US-born children of Mexican heritage.

¹⁰ Audit studies also find mixed evidence of discrimination against Hispanic/Latinx in other realms. Several studies have mixed findings regarding housing discrimination against Hispanic applicants (Feldman & Weseley, 2013; Gaddis & Ghoshal, 2020; Hanson & Santas, 2014; Turner et al., 1991a, b; Yinger, 1991). Blair et al. (2013) finds implicit but not explicit discrimination against Latinx health professionals and community members. Mendez & Grose (2018) and White et al. (2015) find that legislators and bureaucrats are less likely to send communications to Latino constituents.

¹¹ Appendix Table B1 provides lists of stereotypes from previous literature.

¹² How the Census/ACS records people who have obtained additional schooling beyond a high school diploma or GED but have not gotten an additional degree changes over time. For 1970 and 1980, we include people who have

factors explain any differences or lack of differences that we find (as in, for example, Hirsch & Winters, 2014), but rather to describe the slice of the labor market commonly studied in previous audit studies and which will be the core of our experimental work.

We first use the Census and American Community Survey (ACS) from 1970 to 2015 to create longitudinal charts exploring employment outcomes for cohorts across the lifespan. We limit our analysis to native-born individuals because we want to be consistent across the different studies in this project, and the experiments, by necessity, will include hypothetical applicants with US high school diplomas.¹³ That said, perhaps surprisingly, patterns are not much different when foreign-born are included (results available from the authors).

We might expect differences in labor force outcomes for similarly educated Hispanic and non-Hispanic workers in the US because there are differences in these data for Black vs. White people (Lahey, 2018). Figure 1a shows the difference in the probability of being employed in the US Census/ACS by age for Hispanic women compared to non-Hispanic women born between 1933 and 1978. Figure 1b shows the same comparison for men. Unlike similar graphs comparing Black vs. White high school graduate women shown in Figures 1c and 1d, there are no discernable patterns for women by age or by cohort (Lahey, 2018). The difference in employment probability generally ranges between -0.04 and 0.02 points with a few outliers, indicating that Hispanic women are less likely to be employed on average. The difference in the probability of employment for men is generally negative, indicating that Hispanic men are less likely to be employed than are non-Hispanic Men.

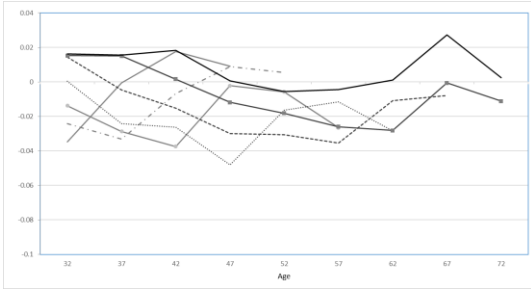
grade 12 and some college less than one year. For 1990, we include high school grad or GED, which implicitly includes people who have some college less than one year. For 2000 and later years, we include high school grad or GED and some college less than one year. Results are similar limiting to just grade 12/high school grad or GED, although for 1990 this again implicitly includes some college less than one year.

¹³ The current version of “born in the United States” limits to those living in the 50 states and DC. Results including territories such as Puerto Rico, American Samoa, Guam and the US Virgin Islands are nearly identical. Resumes in the resume experiments only include Texas high schools and do not include Puerto Rico. We also do not limit to White people only in these charts, but patterns are very similar when we do (see Appendix Figures A1 and A3c-f), with the minor difference of Hispanic men being slightly less likely to be employed than non-Hispanic men until age 60 in Figure 2a.

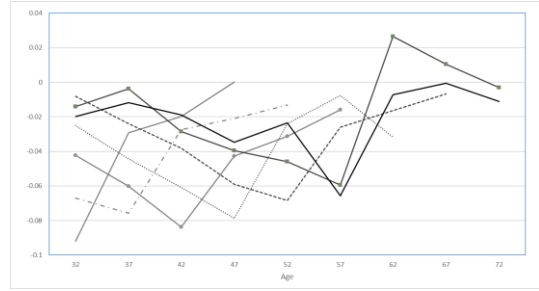
Figure 1 Differences in the Probability of Employment by Race and Ethnicity

— 1968 - · - 1963 —●— 1958 ····· 1953 - - - - 1948 — 1943 — 1938

Hispanics vs Non Hispanics

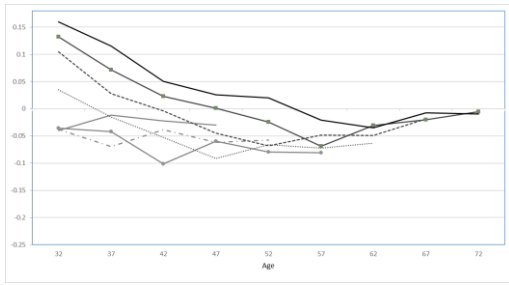


(a) Difference in probability of employment - Females

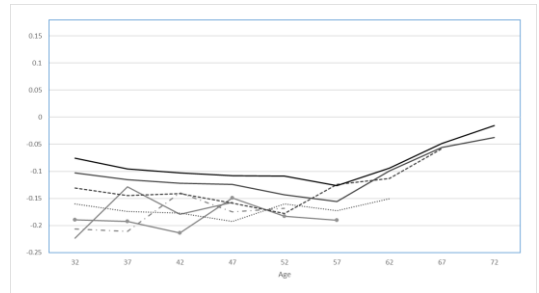


(b) Difference in probability of employment - Males

Black vs White

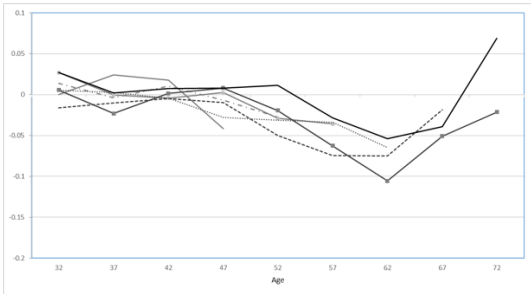


(c) Difference in probability of employment - Females

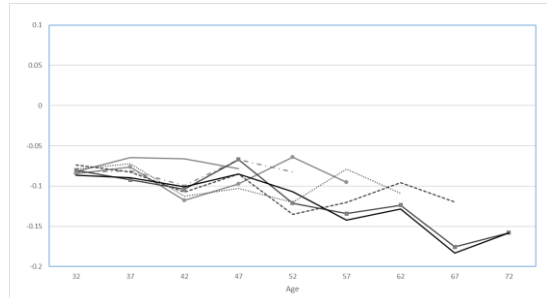


(d) Difference in probability of employment - Males

Hispanics vs Non Hispanics

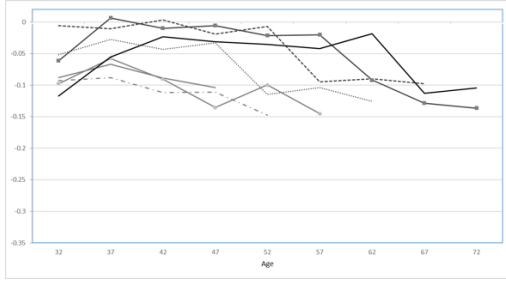


(e) ln(Wage difference) - Females

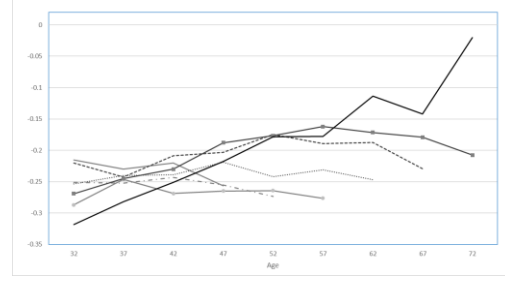


(f) ln(Wage difference) - Males

Black vs White



(g) $\ln(\text{Wage difference})$ - Females



(h) $\ln(\text{Wage difference})$ - Males

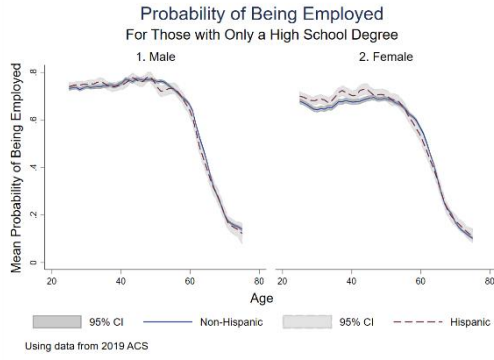
Notes: Data from 1970-2000 Censuses and 2004-2006, 2009-2011, and 2014-2016 ACS. Data include people born in the US (results including non-native-born are available from authors), and those with high school degrees but no additional degrees. Data for Hispanic vs. Non-Hispanic graphs include all races (results for White-only look similar and are available from authors), while data for Black vs. White graphs include all ethnicities.

For men, differences tend to be smaller and flatter for newer cohorts, and for older members of earlier cohorts. Figures 1e and 1f repeat this exercise for wage differences and find little difference in wages at younger ages, in contrast to wage differences between Black and White workers shown in Figures 1g and 1h. The Hispanic results generally have negative differences at older ages for women, suggesting that older Hispanic women make less on average than do older non-Hispanic women. Hispanic men earn consistently less than do non-Hispanic men, and those differences are larger at older ages and for earlier cohorts.¹⁴ In general, differences in employment outcomes for Hispanic compared to non-Hispanic people by age and cohort are neither as stark as those for Black vs. White people (Lahey, 2018) nor do they follow any apparent patterns.

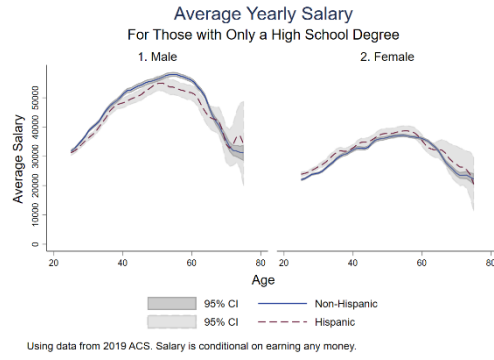
Figure 2 Employment Outcomes by Race and Ethnicity

Hispanic vs Non-Hispanic

¹⁴ For those interested, Appendix Figures A1 e-h extend the age range to start at 22 and includes all available cohorts. We also repeat this exercise for differences in the probability of unemployment for women and men in Appendix Figure A2. For the most part, at older ages, Hispanic men and women are somewhat more likely to be unemployed than are non-Hispanic. At younger ages, differences are mixed with no discernable pattern by cohort. However, there do not appear to be any differences in unemployment rates between the two ethnicities starting around age 50, although these data are highly noisy for older Hispanic adults. Women appear to have smaller differences in unemployment rates overall and across age.

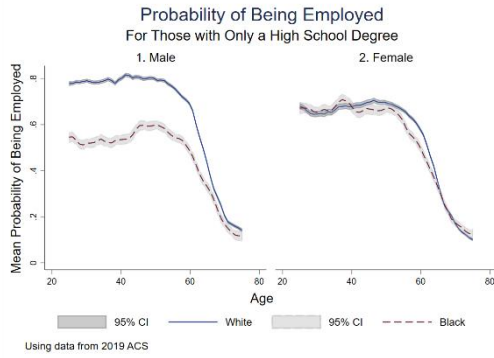


(a)

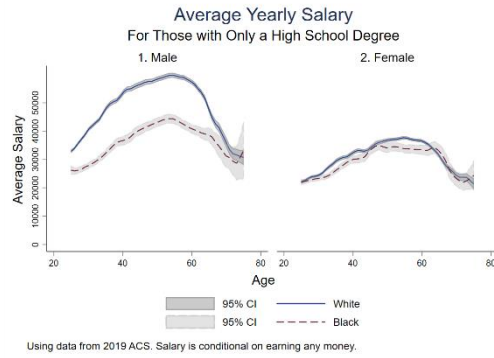


(b)

Black vs White



(c)



(d)

Notes: Data from the 2019 ACS.

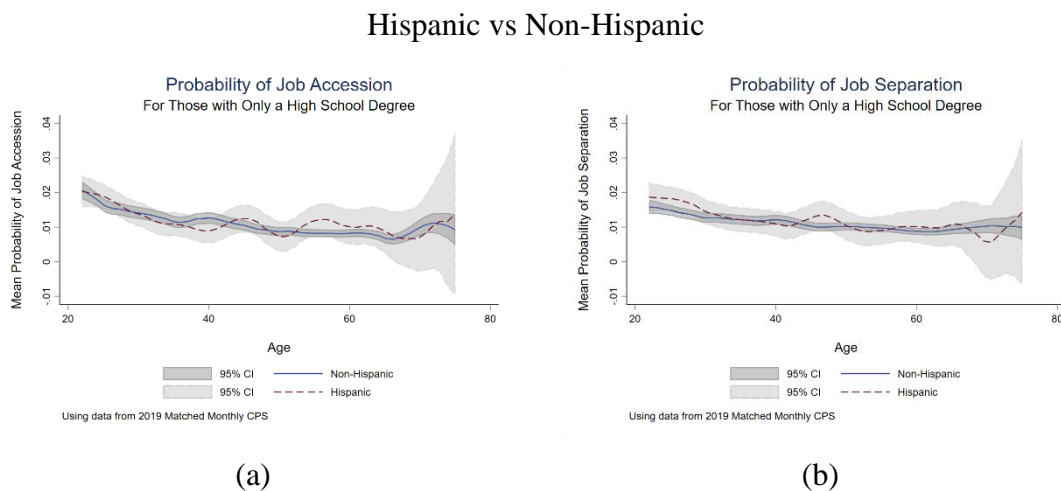
A second way to look at differences in outcomes for Hispanics compared to non-Hispanic people by age is to use a point-in-time estimate using a dataset such as the 2019 ACS, which is again limited to native-born high school graduates without a college degree.¹⁵ Figures 2a and 2b show employment outcomes separately by age, comparing Hispanic and non-Hispanic men and women using a local polynomial smoother. In general, Hispanic men are slightly more likely to be employed than are non-Hispanic men, though this difference decreases as men reach standard retirement ages. There seems to be no difference in employment outcomes between Hispanic and non-Hispanic women. Non-Hispanic men and women have higher annual wages on average than do their Hispanic counterparts, though again, this difference decreases at standard retirement ages. In contrast, Figures 2c and 2d show larger differences between White and Black individuals with

¹⁵ We focus on 2019 to match the period when we ran Experiment 3 and to avoid measuring the effects of the pandemic.

a high school education. Black men are less likely to be employed and earn less than White men. These gaps only close as individuals approach retirement.¹⁶

A third way to look at differences in outcomes for Hispanic compared to non-Hispanic people by age is to study how job flows into and out of employment vary by Hispanic status, again limiting to native-born high school graduates without a college degree in 2019. Here, we use the rotating panel aspects of the Current Population Survey (CPS) and the methodology from (Bleakley et al., 1999) on the IPUMS CPS (Flood et al., 2021) to create measures of job accessions, defined as being not employed in month t and employed in month $t+1$ and job losses, defined as being employed in month t and not employed in month $t+1$. This rough measure of job flows does not capture many short spells of unemployment, nor does it capture moving jobs without a break in between. However, it provides a consistent measure of movements into and out of longer spells of non-employment. Figures 3a-d present probabilities by age using a local polynomial smoother.¹⁷

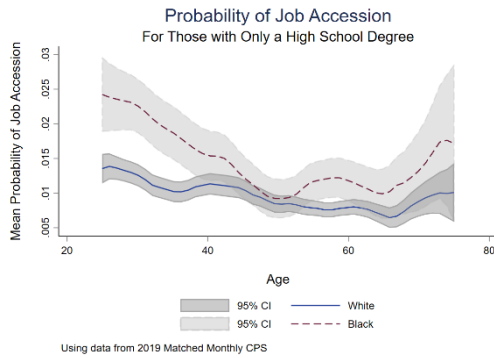
Figure 3 Job Flows: Trends across Age



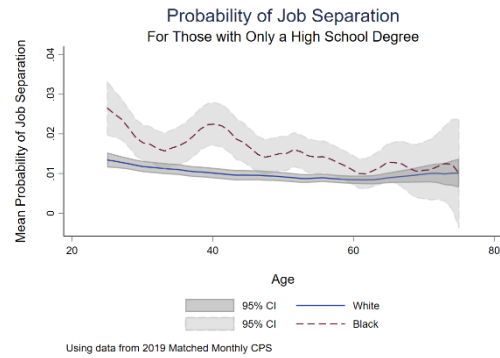
Black vs White

¹⁶ Appendix Figure A 3 provides the graphs for unemployment. Younger Hispanic workers may be less likely to be unemployed than their non-Hispanic counterparts while middle-aged and older Hispanic workers may be more likely to be unemployed, but with mostly overlapping confidence intervals. In contrast, Black workers are more likely to be unemployed than their White counterparts, and the gap only closes at retirement for women.

¹⁷ Because the CPS does not differentiate between years of schooling in the “some college but no degree” category, this group may be slightly more educated on average than the samples shown in Figures 1, 2, and 4, which only include people with less than a full year of post-high school education. However, these other figures are not sensitive to the inclusion or exclusion of people with 1 or more years of post-high school education.



(c)



(d)

Notes: Data from the 2019 CPS.

Although there are slight differences in the probability of a job accession between the two groups that vary with the age of the worker shown in Figure 3a, they overlap for the most part. Similarly, Hispanic workers are no more likely to see a job separation than are non-Hispanic workers, shown in Figure 3b. Again, these results are in contrast to those for Black workers shown in 3c and 3d, who show more accessions and separations than do similar White workers at younger ages.

There are several problems with using data from national surveys to compare Hispanic to non-Hispanic outcomes, particularly over time, as with the cohort graphs. First, the Census and ACS data were affected by several question changes in 1980, 2000, and 2008 that increased the number of people responding that they were Hispanic, which could also change the composition of people who report being Hispanic and non-Hispanic. Second, these surveys do not fully capture all Hispanic people in the US, and the extent of this problem will vary with changes in citizenship status, xenophobia, and the legal status of immigrants (O’Hare, 2019). Third, whether an individual self-identifies as Hispanic can change across generations. Duncan and Trejo (2011) show that a substantial share of Mexican Americans no longer self-identify as Hispanics. The authors suggest that the most assimilated individuals eventually start identifying as Whites. This implies that this self-selection can explain part of the gaps between Hispanics and White non-Hispanics. Hull (2017) finds a persistent test score gap between second and third-generation Hispanic children and White children of similar socioeconomic status, consistent with the self-identification hypothesis. Additionally, survey data can only provide information about point-in-time general equilibrium, which includes both supply and demand sides of markets. Resume

experiments like the three discussed below can instead look at the first step of the hiring process to determine how hypothetical job applicants are treated by Hispanic status, *ceteris paribus*.

IV. Experiment 1—Student sample

Experimental data allow us to study partial equilibrium and potential mechanisms for patterns, including hiring discrimination against Hispanics or its absence. They also allow us to bypass problems with selection and reporting concerns that plague survey data. We focus on three experiments to study whether discrimination affects Hispanics early in the hiring process.

The first two experiments discussed in this paper have a similar methodology. In both studies, participants were asked to rate 40 resumes for an entry-level clerical position for which all items in the resume (including our variables of interest, names and high school graduation dates) had been randomized. While doing the rating, their eyes were tracked with an eye-tracking device. About 13% of the resumes in both experiments randomly had Hispanic last names. Thus, these experiments will only be able to say something about Hispanic applicants with Hispanic last-names and non-Hispanic first names. Participants are not aware that researchers will focus on the relations between race, ethnicity, and age.

III.A. Design

The study took place between January 2013 and January 2014. We recruited participants using flyers at a large southwestern university. The sample was restricted to professional students, particularly MBA, MPA, and HR graduate students, as well as business undergraduates. We dropped two non-native English speakers and one participant with a diagnosed learning disability because these could affect eye-tracking (Holmqvist et al., 2011). The final sample has 152 participants who were paid \$20 for the session. Thirty-eight percent of participants were Master's students, one percent were Ph.D. students, 38 percent were upper-division business majors, and 23 percent were lower-division business majors. As shown in Table 1, the average age was 22, and 56 percent of the sample was female. Eighty-nine percent of the participants identified as White, 7 percent as Asian, and 5 percent as Black or African American. Fifteen percent of participants identified as Hispanic or Latino. Because of the constraints of the eye-tracking system, the sessions were run individually for each participant. Most people finished in less than 45 minutes.

The task consisted of rating resumes for an administrative level one position. We created the resumes using Lahey and Beasley's (2009) resume randomizer program and used a database of resume inputs drawn from actual resumes. The program randomly chooses from the database high school graduation date (to signal age), first name (to signal gender and race), last name (to signal ethnicity), home address, email address, high school attended, previous work experience texts, additional training, volunteer experience, and a statement about flexibility. Addresses were selected randomly from the Houston metropolitan area, and we took high school names randomly from across Texas. In another study, we checked the names' perceived race, gender, ethnicity, and socioeconomic status using a sample of 95 psychology students (Barlow and Lahey, 2018).¹⁸

Each participant rated 40 unique resumes. Resume characteristics repeated across participants, but each participant saw each specific line at most once. Graduation dates followed a uniform distribution, 50 percent of the resumes had a female name, 9 percent had Black names, and 13 percent had Hispanic last names and non-Hispanic first names. After the sessions, we divided the resumes into "Areas of Interest" (AOI) to measure the time spent in each section. For this study, we removed the resumes with Black first names before data analysis because there may be interactions between Black first names and Hispanic last names, but we do not have a large enough sample size to investigate those interactions.

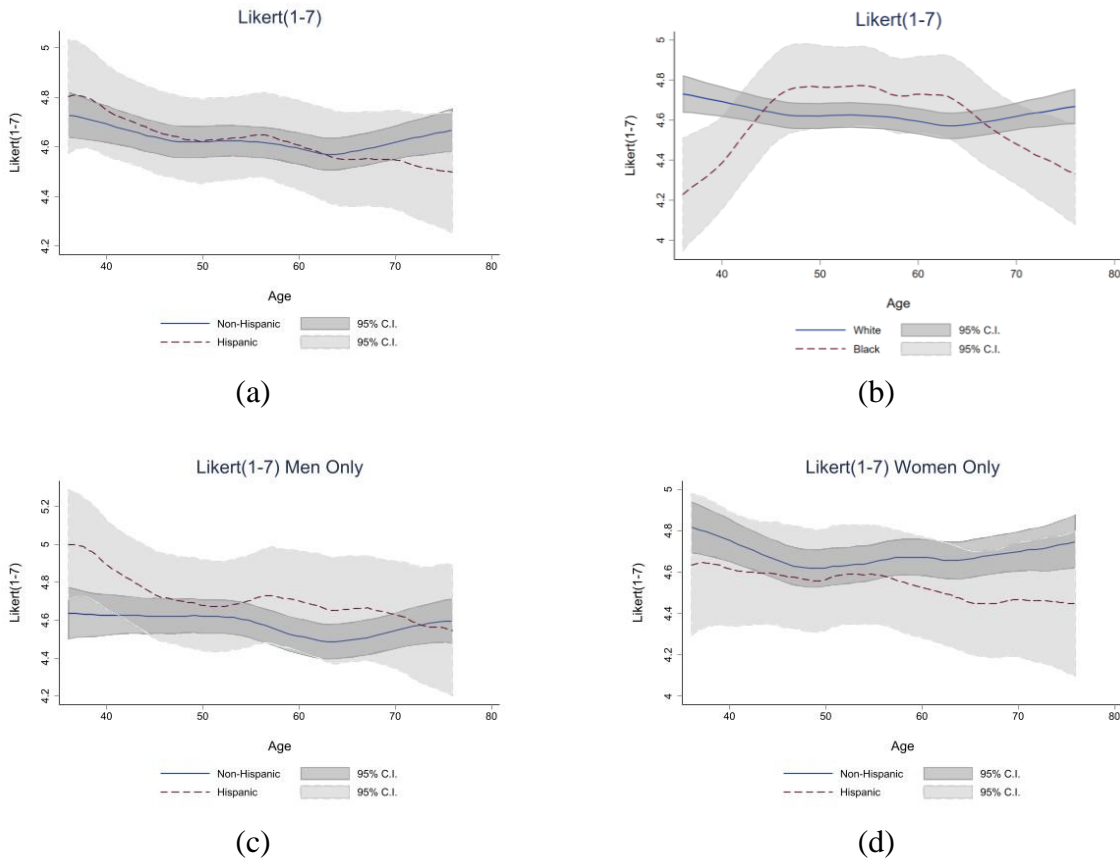
At the start of the session, participants read an information sheet and consented to participate. We told participants that the purpose of the study was understanding how hiring managers decide whom to interview. We calibrated the eye-tracking equipment, a D6 eye-tracking system from Applied Science Laboratories (Bedford, MA), to capture where the participant was looking on the computer screen. Participants read a description of the administrative position and were asked to rate the candidate's ability to fulfill the position using a 7-point Likert scale, with seven as the most "hireable." Participants rated 40 resumes, one at a time. After rating the resumes, participants completed a series of psychological, political, and demographic questions. After finishing the survey, participants were debriefed and paid.

¹⁸ Barlow and Lahey (2018) find that 95% of names with non-Hispanic first names and Hispanic last names were correctly coded as Hispanic, and 95% of non-Hispanic first names and non-Hispanic last names were correctly coded as non-Hispanic. No difference by Hispanic-name status was found in the probability of the hypothetical person's mother having a college degree (authors calculations using Barlow and Lahey (2018) dataset).

III.B. Results

In Figure 4, we plot separately for Hispanic and non-Hispanic applicants, age, as indicated by high school graduation date, against the participant’s Likert (1-7) rating, with 7 indicating most hireable, using a local polynomial smoother with 95% confidence intervals. Here we see a general, but not statistically significant, decline in resume rating with age for both groups. The lines for the two groups overlap until around age 60, when the non-Hispanic group increases in ratings while the Hispanic group continues its downward trend. Even with the trends diverging, the non-Hispanic line is still within the confidence intervals of the Hispanic line. In contrast, Figure 4b shows an inverse U-shape pattern for ratings for Black applicants.¹⁹

Figure 4 Resume Ratings across Ethnicity and Age



Note: Data from Experiment 1.

¹⁹ This figure is similar to the figure in Lahey and Oxley (2021) but excludes Hispanic names from both Black and White groups.

Figures 4c and 4d repeat this exercise for male and female applicants. We see that for men, Hispanic applicants are generally preferred to non-Hispanic applicants, but their confidence intervals are generally overlapping and trends overall seem similar: mostly flat with a slight downward trend. For women, the order of the lines is reversed, with non-Hispanic women preferred over Hispanic women. Here, the line for Hispanic women is a straight downward trend while that for non-Hispanic women shows an initial decline followed by a bump up around age 50. Even so, the confidence intervals for these two groups have substantial overlap. While there may be concerns about sample size, it is important to note that using the same experiment, Lahey and Oxley (2021) found significant differences in the patterns of applicants with Black names and those without, even though the proportion of resumes with Black first names (9%) is smaller than those with Hispanic last names (13%). Regression analysis in Table 2 finds no significant interaction with Hispanic last names and a quadratic age term.²⁰

There may be a concern that the student sample, while made up of masters and undergraduate students likely to be hiring in the future, is too young to provide an externally valid group for this study. Therefore Experiment 2 repeats this study with a sample of human resource managers recruited from career fairs and businesses.

V. Experiment 2—Human resources sample

V.A. Methods

The design and methodology of Experiment 2 were identical to that of Experiment 1 with the following changes: First, and importantly, the participants of this study were 67 human resource professionals recruited with the help of a regional human resources association. Instead of bringing participants into the laboratory, we brought a portable Tobii X2-60 eye-tracker to human resources conferences and participants' workplaces. Finally, participants were paid \$50 for their time rather than \$20 in acknowledgement of the increased value of their time.

The demographics of this new sample differ considerably from the student sample, as demonstrated in Table 1. They are more likely to be female (81%), somewhat less likely to be

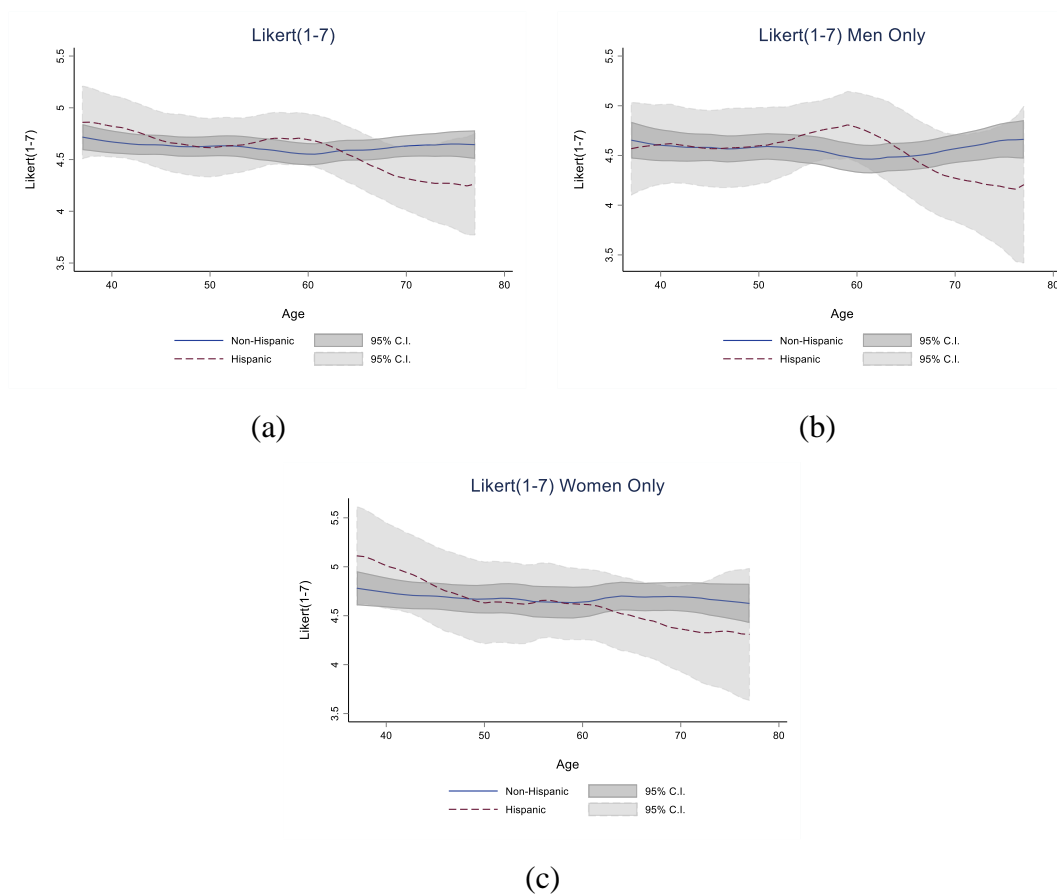
²⁰ We also repeated the previous charts using time spent on the resume as the outcome variable and found no consistent differences in time spent on Hispanic resumes compared to non-Hispanic resumes with confidence intervals that overlap (results available from authors).

White (85%), less likely to be Asian (1%), more likely to be Black (15%), slightly more likely to be Hispanic (19%) and about 20 years older on average (average age is 44).

V.B. Results

5a-c repeat the exercise in Figures 4a,c,d for the population of HR manager participants. Again, we see evidence of a slight downward trend and the non-Hispanic line being entirely within the confidence intervals for the Hispanic line. As with the student sample, if anything, there is a divergence at older ages, with the Hispanic sample less preferred than the non-Hispanic sample. Given the smaller sample size, the lines, particularly for Hispanic applicants, are not as smooth as they are for the larger student sample, which could account for the odd bump in the middle of the HR sample, driven by resumes with male names. Alternatively, these bumps could represent differences in beliefs between the two samples.

Figure 5 Resume Ratings across Ethnicity and Age



Note: Data from Experiment 2.

Figures 5b and 5c repeat these exercises for male and female resumes, respectively. Unlike with the student sample, there is no pattern of Hispanic male resumes being preferred over non-Hispanic male resumes. Instead, the lines are generally overlapping. Similarly, there is no pattern of non-Hispanic female resumes being preferred over female Hispanic resumes with the HR sample. Again, the lines are generally overlapping, although there may be some divergence at older ages as Hispanic female resumes earn lower hireability ratings at older ages. Regression analysis in Table 2 finds no significant interaction with Hispanic last names and a quadratic age term. In general, it appears that the HR sample does not treat Hispanic and non-Hispanic resumes very differently. Again, this contrasts findings for Black and White resumes, which show different patterns (see the appendix of Lahey & Oxley (2021) for estimates using a local weighted regression smoother), although the sample size for Black resumes in this study is too small to say anything definitive.²¹

VI. Experiment 3—New experiment with mTurk sample

One limitation of the first and second experiments is that ethnicity is signaled using only Hispanic last names. While this type of signal has the benefit of last names being less susceptible to parental choice compared to first names, these experiments are not externally valid for Hispanic people who go by Hispanic first names, which is common in the United States.²² Additionally, people may perceive Hispanic people with non-Hispanic first names and Hispanic last names as second- or later- generation people who are no different from non-Hispanic people (Gaddis and Goshal, 2020). Both reasons could explain the absence of significant differences in ratings between Hispanic and non-Hispanic resumes in the previous experiments. Thus, in the third experiment, we widen the signal of Hispanic names to include combinations with Hispanic first names. We also take the study to mTurk to expand the sample to cover a broader part of the US population and recruit a larger sample to increase statistical power. One disadvantage of this sample is that

²¹ We again repeated these charts using time spent on resumes as the Y variable and again, found no consistent differences in time spent on Hispanic resumes compared to non-Hispanic resumes, with confidence intervals that mostly overlap. Any differences in time spent by Hispanic status, if they exist, remain small.

²² The census website <https://www.ssa.gov/oact/babynames/decades/> provides information on popular US names by decade. Jose, Juan, and Carlos all appear in the top 200 names for US Social Security card applications from the 1950s-1980s. Miguel, Jesus, Jorge, and Alejandro appear in the top 200 for the younger cohorts in the sample. For the ages in our sample, the only distinctively Hispanic girls' name to make their top 1000 list is Guadalupe, which peaks at the 304th spot in 1950 and the 390th spot in 1980. Maria, Patricia, Sandra, Linda, and other common Hispanic girls names do appear on the lists, but they are not distinctively Hispanic.

we cannot use eye-tracking technology to validate if the participants are paying attention to the different sections of the resumes.

In addition to widening the Hispanic signal, we test if stereotypes against Hispanics affect ratings. Potential stereotypes include the beliefs that Hispanics have poor communication skills, need more supervision, are lazy, tend to have many children, and are more suited to manual labor (Dixon & Rosenbaum, 2004; Dong & Murrillo, 2007; Jackson, 1995; Jones, 1991; Markert, 2004; Ramirez Berg, 1990).²³ These stereotypes may affect resume ratings and point towards levels-based statistical discrimination/incorrect stereotypes.²⁴ We introduce questions and resume elements to test if specific stereotypes against Hispanics may explain potential differences in resume ratings.

VI.A. Design

We recruited 1,068 participants from Amazon’s mTurk in five waves between September 2019 and July 2020. We recruited participants with verified managerial experience in the first two rounds, participants with clerical experience in waves three and four, and the general population in waves four and five.²⁵ We created a task in mTurk asking workers to rate 30 resumes of applicants to the same administrative position as in Experiments 1 and 2 (for a total of 32,040 unique resumes). If the worker accepted the task, they were directed to a survey hosted in Qualtrics. To prevent biasing participants, we did not disclose that the survey was part of a research project until they completed it. The survey first described the characteristics of the position, then displayed the resumes one by one, asking participants to rate them on a 7-point Likert scale for “hireability” as in the prior studies. Then, in a second round, we redisplayed the resumes in the same order asking participants to rate if the applicant had the necessary skills, the applicant’s communication skills, and their need for supervision. We followed with demographic questions and unincentivized trust, reciprocity, and altruism questions. After completing the survey, the participants received a code to enter into mTurk for payment. We debriefed participants, revealing that they had participated in academic research, and gave them the option to drop out of the study without

²³ See Appendix Table B 1 for more potential stereotypes from literature.

²⁴ Note that for the purposes of this modeling, the outcomes of levels-based statistical discrimination is the same when using incorrect stereotypes as inputs.

²⁵ mTurk allows for tasks to be sent to participants with particular traits.

affecting their payment. Nobody dropped out of the study. We paid participants \$4 for a half an hour task.²⁶

We created fictitious resumes using the same procedure described in Experiments 1 and 2. As mentioned above, we enhanced the Hispanic signal by introducing Hispanic first names to the resumes. The resumes were randomized such that the proportion of Hispanics and non-Hispanics is representative of the population in Texas. Specifically, 80 percent of the resumes have non-Hispanic first and last names, 10 percent have Hispanic first and last names, 5 percent have a non-Hispanic first name and Hispanic last name, and 5 percent have a Hispanic first name and non-Hispanic last name. Fifty percent of the resumes have female names, and age ranges between 35 and 75 years.

To test some of the stereotypes affecting Hispanics, we asked participants questions to assess potential stereotypes as outcome variables when we brought back the resumes after the first rating. We asked participants how much supervision they think the candidate needs and to rate the candidates' communication skills. We also randomly changed resume characteristics to highlight traits related to stereotypes. We use volunteering at a Parent Teacher Association (PTA) to signal having children, as in Correll et al. (2007). We also exploit random variation in work histories to signal low-skill manual labor. Finally, we randomly included knowledge of Spanish in the resumes to test if it makes Hispanic applicants more attractive to employers.

VI.B. Data Quality and Participants

While recent research shows that experimenter demand effects are not likely to be a concern in survey experiments in general and mTurk survey experiments in particular (Mummolo & Peterson, 2019; de Quidt et al., 2018), we took several steps to ensure the best possible data quality. First, as mentioned above, participants did not know the rating process was part of academic research until they finished the survey. Small companies use mTurk to rate applicants, so this task is not unusual for mTurk workers. Second, after the participants finished rating the resumes, we introduced an attention check question asking for a specific answer to stimulate respondents to pay extra attention to the subsequent rating questions. We introduced a second attention check question

²⁶ The first wave was a pilot with 79 participants to obtain data to calculate power and calibrate payment according to mTurk's ongoing rates. In this wave, we paid participants \$3 for completing the task.

after the demographic questions. Finally, there may be some concerns about lack of effort, attention, and deception in mTurk that could affect the quality of the collected data (Dennis et al., 2019; Hauser et al., 2019; Kennedy et al., 2020). To address this concern, we restrict the sample to participants who passed attention checks, took more than 20 minutes to complete the survey, and have a unique IP address. We also checked three open-ended questions that asked participants in which state they were born, grew up, and where they currently reside. We excluded participants who did not write a valid US state name in these questions. As a last check, Qualtrics reports GPS coordinates associated with IP addresses at the city level. We deleted any participants whose coordinates do not belong to the United States. The final sample has 739 participants (22,170 resumes).

Table 3 presents summary statistics for the mTurk participants. Fifty-five percent of the participants in the third experiment are women. The average age of the participants is 41.7 years. Eighty-two percent of the sample identifies as White, and 10 percent as Hispanic. These proportions are close to the general U.S. population. Sixty-three percent of the sample has a college education or more, a larger proportion than the general US population. Almost 55% of the sample has worked for more than 15 years. Ninety-two percent report having worked for payment during the last week, and 44% report having an annual income above \$50,000. Almost 30 percent of the sample has human resources experience, 62 percent has some hiring experience, and 68 percent of the participants report having managerial experience, which is consistent with our targeting of managers.

We used data from the first wave (79 participants) to calculate the sample size needed to detect effect sizes larger than 0.1 with 80 percent power. Given our design, to detect differences among the four ethnicity signals (non-Hispanics, Hispanic first and last name, non-Hispanic first name and Hispanic last name, and Hispanic first name and non-Hispanic last name), we required a sample of 271 participants. To detect differences across the age range, we required a sample of 276 participants. To detect differences among the ethnicity signals as they age, we required a sample with 394 participants. Hence, the final sample of 739 participants has enough power to detect anything but small effect sizes.

V.C. Results

V.C.1 mTurk Participants Pay Attention to the Resumes

Moving the study to mTurk has the disadvantage that we cannot track what participants are looking at in the resumes. We address this issue in four ways. First, we restricted the sample to ensure high-quality data, as discussed in the previous section, so that people who were not engaging with the survey were removed.

Second, in the pilot wave, we designed questions similar to Equal Employment Opportunity items and asked participants if they believed that the candidate was over 40 years, if the candidate was part of an underrepresented minority group, and whether or not the candidate was a veteran (although we do not use answers to the latter).²⁷ We use the age question to test if participants can infer age from the resume and the minority question as a proxy to test if participants can infer ethnicity. We did not ask for ethnicity directly to keep the questions similar to a hiring questionnaire since, at this point, participants did not know they were part of research. Table 4, Panel A, shows that for resumes younger than 40, almost 90 percent of the participants correctly indicate that the candidate is younger than 40. For resumes signaling age 40 or older, 69 percent of the participants correctly indicate that the candidate is 40 or older.

Table 4, Panel B, shows that for non-Hispanic resumes, 92.6 percent of the participants correctly indicate that the candidate is not from a minority group. For resumes with both a Hispanic first and last name, 67.1 percent of the participants correctly indicate that the candidate is from a minority group. Results are not as clear for resumes with a Hispanic and non-Hispanic mix in the name. Participants believe that 57 percent of the resumes with a non-Hispanic first name and a Hispanic last name belong to a minority group. In comparison, they indicate that 44 percent of the resumes with a Hispanic first name and a non-Hispanic last name are part of a minority group.²⁸ We can conclude that, in general, participants can obtain age and ethnicity status from the resumes. It is important to note that this experiment's objective is to measure how participants respond to observed signals of minority status, in this case, different types of Hispanic names as indicated on resumes, not how they respond to unobserved minority status. However, there is an external validity question regarding how much the results overlap with U.S. populations that identify as

²⁷ We presented these questions after the hireability rating to avoid introducing experimenter demand effects.

²⁸ We find similar patterns splitting the resumes by the applicant's gender.

Hispanic but may or may not have a Hispanic name to signal their ethnicity status, such as those in the national surveys discussed in Section II.

Third, there is a concern that participants who answered the survey on a cellphone or tablet might not be able to read the resumes clearly because of a smaller screen. Qualtrics reports the device's operating system where the participant completed the survey, and we use this information to identify the type of device. Of the participants who passed all the data quality checks, only 34 answered the survey on a cellphone or tablet. These participants do not exhibit significant differences in ratings compared to participants who completed the survey on a computer.

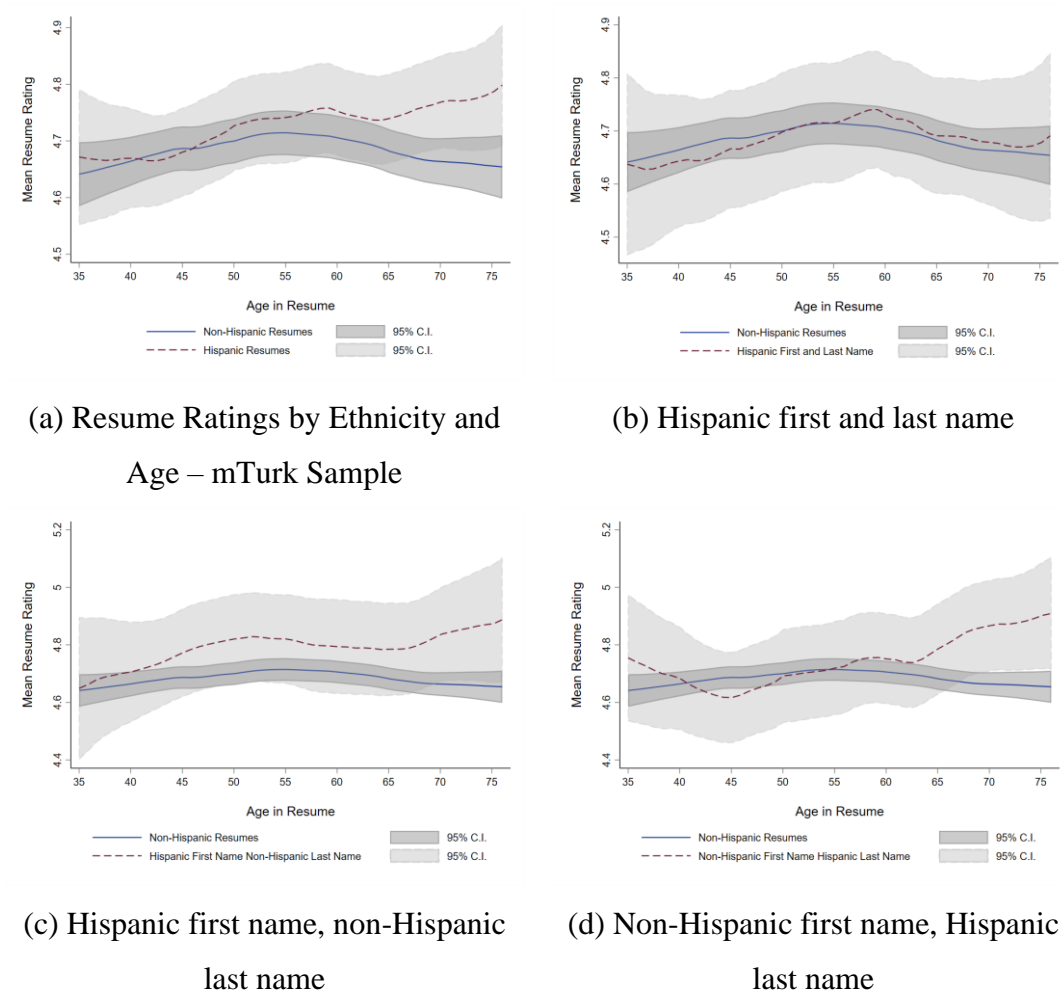
Finally, to check if participants pay attention to resumes, we estimated three machine learning models that use resume characteristics, excluding age and ethnicity, to predict resume ratings. Specifically, we included as predictors indicators for every job history, skill, email provider, high school name, and volunteering experience included in the resumes. We estimated a linear LASSO, a two-step adaptive LASSO, and a Random Forest. For comparison, we also estimated a linear regression, including the same resume characteristics we used to train the machine learning models. The LASSO models' R^2 fluctuates between 0.218 and 0.229 in the training and validation sets. For comparison, the linear regression with the same controls has an R^2 of 0.2. The Random Forest model has an R^2 of 0.793. This model has a higher predictive power because it tests arbitrarily for more interactions than the LASSO. These specifications are highly correlated. We can conclude that resume characteristics have high predictive power for resume ratings.

We also take advantage of the fact that all of the resume controls (other than age, which we do not include in our machine learning) are dummy variables to check which resume characteristics contribute more to the prediction. We rank the variables LASSO keeps as predictors by the magnitude of their coefficients and find that detailed job histories related to clerical experience and skills related to clerical work have the highest weights in LASSO. On the other hand, job histories unrelated to clerical work like babysitting, waiter or cook, high school name, and email provider have the lowest weights or are not chosen as predictors by LASSO. The same is true for OLS estimates that use the same variables as LASSO as predictors. Coefficients for jobs that explicitly use the words "clerical" or "clerk" are positive, highly significant, and have large magnitudes. Similarly, volunteer experience generally has a positive effect on resume ratings,

unemployment spells have a negative effect, and listed skills have positive effects. Overall, these results suggest that participants read the resumes and used their information to rate the candidates.

V.C.2 Results on Resume Ratings

Figure 6 Resume Ratings by Type of Hispanic Signal



Note: Data from Experiment 3.

Figure 6a replicates the same exercise as in Figures 4a and 5a. In contrast with the results of the previous experiments, we only observe a decline in resume ratings for non-Hispanics starting around age 55. However, the trends in ratings across age are not necessarily statistically significant. For Hispanic applicants, we can see a decline in ratings until age 45. After that point, ratings increase with age. There is no statistically significant difference between Hispanic and non-

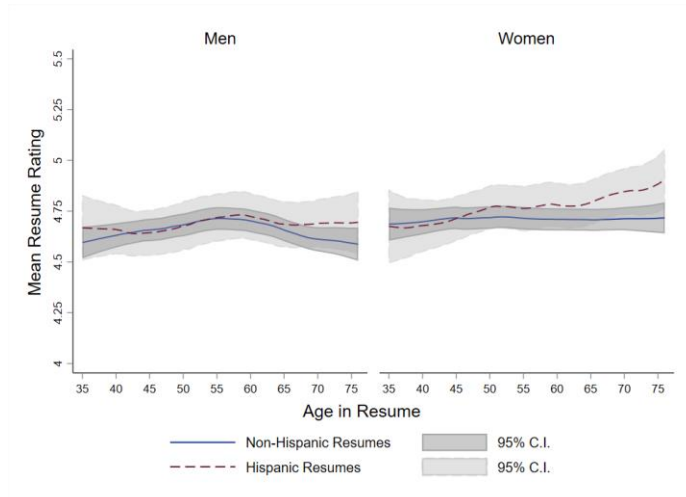
Hispanic ratings. The non-Hispanic line is within the confidence intervals of the Hispanic line except for the oldest hypothetical applicants.²⁹ Table , Panel A, provides regression estimates for Figure and shows no meaningful difference in resume ratings between Hispanic and non-Hispanic resumes. Appendix Table A1 shows that under a linear specification, we cannot say that ratings are affected by age for Hispanics and non-Hispanics, and there is no statistically significant difference between the two groups. When we apply a quadratic trend in age interacted with a Hispanic indicator, we cannot reject that ratings are not affected by age for non-Hispanics and point estimates are small and statistically insignificant. For Hispanics, the results support that ratings have an inverse U-shaped pattern across age.

In Figures 6b-d, we split Hispanic resumes by the three different types of Hispanic names. We find that resume ratings for resumes with a full Hispanic name follow the ratings for non-Hispanic resumes closely. The increasing trend in ratings with age is present only for resumes with a mixed name (either a Hispanic first name or last name, but not both). However, there is no significant difference with non-Hispanic resumes. Regressions to verify the patterns in Figure 6 in Table 5, Panel B indicates that, on average, there is no meaningful difference in resume ratings between Hispanic and non-Hispanic resumes. In every case, that point estimates are smaller than 1.5 percent of the average rating for non-Hispanics and statistically insignificant.³⁰

Figure 7 Resume Ratings by Ethnicity, Age, and Gender – mTurk Sample

²⁹ In addition to asking about the “Hireability” rating in the first round of resume rating, we also asked participants whether or not each candidate had the necessary skills to fulfill the position in the second round of rating. Again, we find no significant difference between Hispanic and non-Hispanic resumes. The patterns are similar to the results in Figure . For non-Hispanics, ratings are flat, with a slight decline starting at age 55. For Hispanics, ratings increase with age.

³⁰ We also check if the most common Hispanic names according to Census data (such as Jose, Juan, Guadalupe and Martina) elicit a different response. Again, the point estimates are small and there is no significant difference in the response to these names compared to less common, Hispanic names (such as Santiago, Diego, Pilar, and Manuela).



Note: Data from Experiment 3.

Figure 7 splits Figure 6a by applicant gender. Again, there is no significant difference between Hispanics and non-Hispanics across different ages. For men, both Hispanic and non-Hispanics display an inverse-U trend, and the ratings are close to each other. For non-Hispanic women, there is a slight negative trend, while Hispanic women display an increasing trend. Female applicants drive the increasing trend with age with mixed Hispanic names. For almost every age, the non-Hispanic line lies within the Hispanic line’s confidence interval for both genders.

To test the robustness of these results, we apply several restrictions to the sample to try to match it to the HR sample from Experiment 2. First, we restrict the sample to participants with at least a college education. We then select participants with a college education, HR experience, and hiring experience. We also matched mTurk participants to the HR sample from Experiment 2 using propensity score matching on all observable demographics. Finally, we restricted the sample to waves one and two, where we contacted mTurk workers with manager qualifications registered in mTurk. In all subsamples we find similar patterns as the results in Experiments 1 and 2, and we cannot reject that Hispanics have the same pattern as non-Hispanics (results available from authors).

V.C.3. Heterogeneity by Participant Characteristics

We now explore if there are different patterns in resume ratings among participants with different characteristics. Figures 8a-f present these results. We find no significant differences in

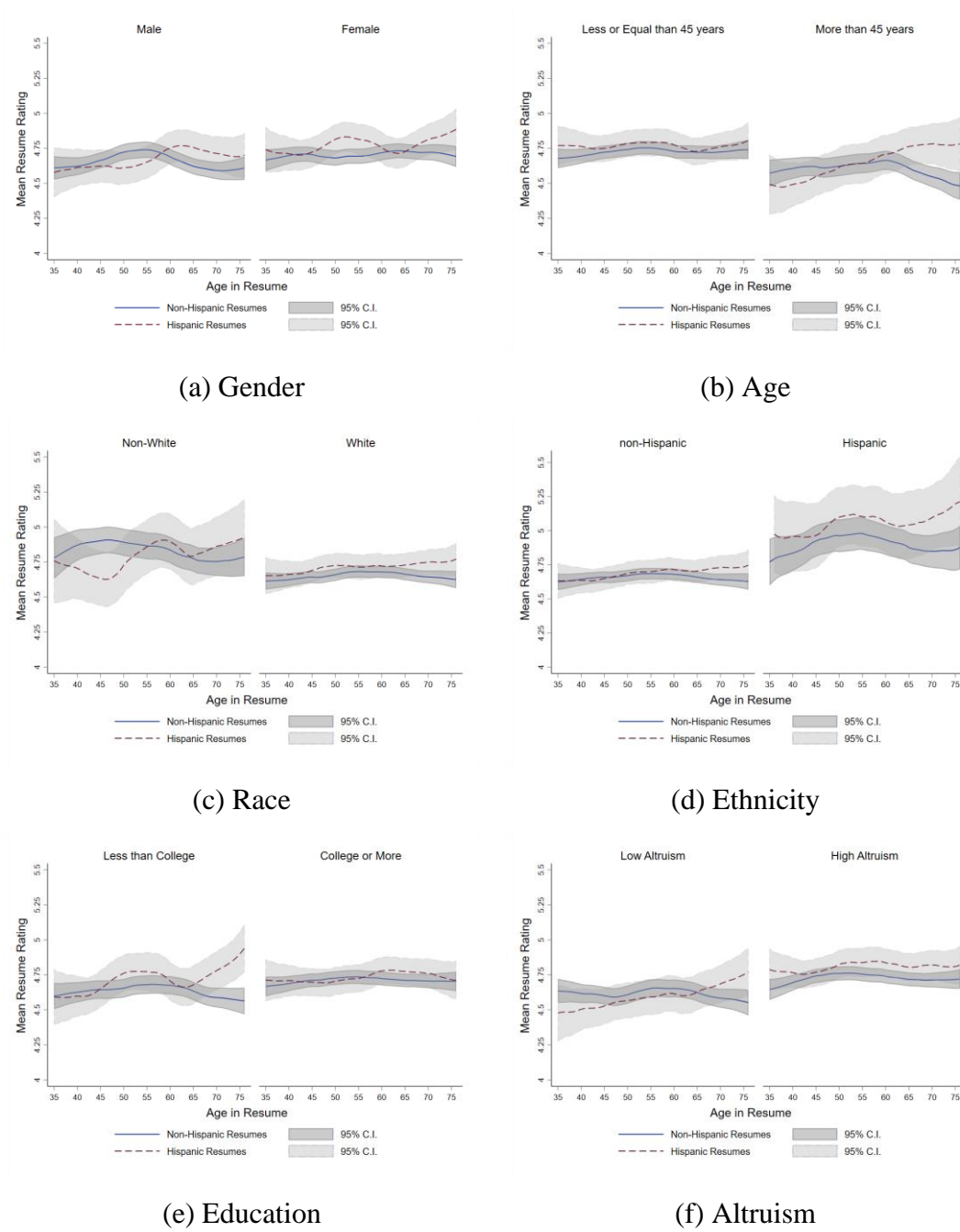
ratings between Hispanic and non-Hispanic resumes, and the patterns are consistent with the main results. Figure 8a shows that men and women give similar ratings to Hispanic and non-Hispanic resumes. Patterns across age are similar, and there is no significant difference in ratings. Splitting participants by age, we find that participants older than 45 years give lower ratings than do younger participants, give lower ratings for older non-Hispanic candidates, and prefer an older Hispanic applicant to an older non-Hispanic applicant (Figure 8 Figure b). Participants younger than 45 years give flatter ratings for Hispanics and non-Hispanics, with no meaningful differences between groups.

Figure 8c displays ratings splitting participants by race. White participants give lower ratings than non-White participants, and there are no significant differences between Hispanics and non-Hispanic resumes. The estimates for non-White participants are noisier than the ones for White participants because of their smaller sample size, but again there are no differences between Hispanics and non-Hispanic resumes. Regarding ethnicity, participants who identify as Hispanic give higher ratings than participants who do not identify as Hispanic and slightly higher ratings for Hispanic resumes (Figure 8d).

Figure 8e explores differences by participant's education. Participants with a college education or more give flat ratings across age for both Hispanic and non-Hispanic applicants, with no significant difference between both groups. Less-educated participants give higher ratings to older Hispanic candidates.

Finally, we also included a question to elicit altruism from participants and check if differences in altruism lead to differences in ratings between Hispanic and non-Hispanic resumes. Figure Figure f presents these results. High-altruism participants give Hispanics higher ratings, and the difference with low-altruism participants is statistically significant. However, these results are only suggestive since we did not incentivize the question that elicits altruism.

Figure 8 Heterogeneity in Resume Ratings by Participant Characteristics

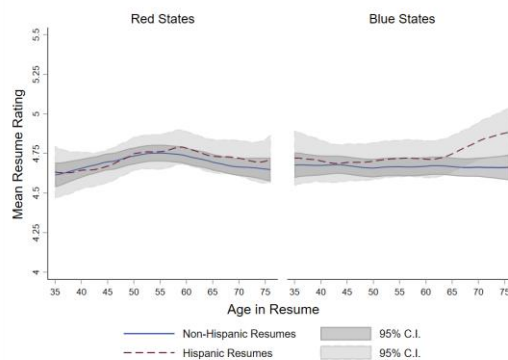


Note: Data from Experiment 3.

V.C.4. Regional Heterogeneity in Resume Ratings

Given the anti-immigrant and anti-Hispanic rhetoric of the Trump campaign,³¹ it may be that there is heterogeneity in discriminatory patterns by political party. We did not ask people their political affiliation, so we proxy with state of residence. Thus, we check if resume ratings for Hispanics and non-Hispanics vary across “Red” or “Blue” states using the 2016 Presidential Election results. We asked participants in which state they currently reside, and Qualtrics reports the geographic coordinates associated with the participant’s internet provider’s IP address. Figure 9 presents these results. In “Red” states, resume ratings for Hispanic and non-Hispanic applicants are similar, following the same trends across age. In “Blue” states, resume ratings for Hispanic candidates display an increasing trend starting at age 55. In both cases, there are no statistically significant differences in ratings between Hispanic and non-Hispanic resumes.³²

Figure 9 Differences in Resume Ratings between Red vs Blue States



Note: Data from Experiment 3.

V.C.5. Checking Hispanic Stereotypes

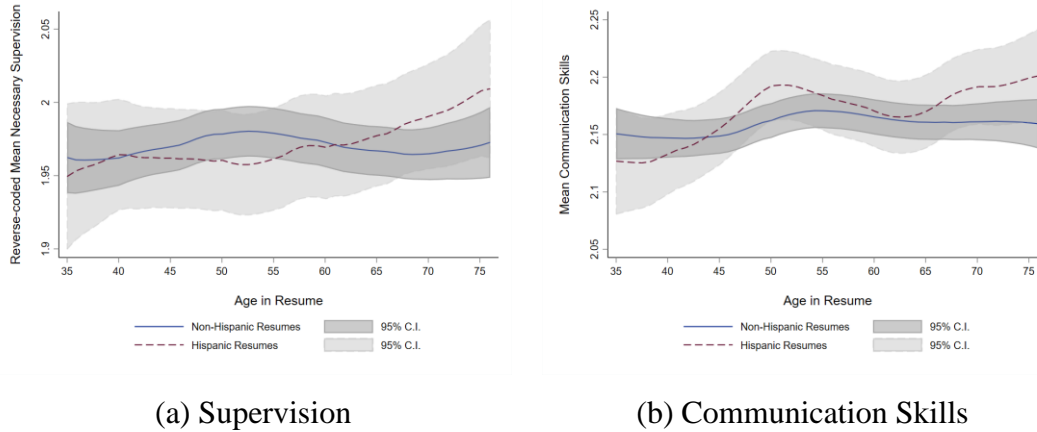
The academic literature in psychology, sociology, and media studies identify several stereotypes of Hispanics that could also be present in labor markets. These stereotypes include being lazy and needing more supervision, having poor communication skills, having many children and taking time off work, and being suited to manual labor (Jackson, 1995; Jones, 1991; Ramirez Berg, 1990). We introduced two approaches in the survey to analyze the potential effects of these stereotypes on resume ratings. First, when we brought back the resumes after the first

³¹ See for example, Gamboa 2015, Rose 2022, and Yousef 2022.

³² Differences by regional geography are available from authors.

rating, we asked participants questions to assess potential stereotypes as outcome variables. We asked participants how much supervision they think the candidate needs and to rate the candidates' communication skills.³³

Figure 10 Ratings for Need for Supervision and Communication Skills



(a) Supervision

(b) Communication Skills

Note: Data from Experiment 3.

Figure 10 presents these results. In Figure 10a, we inverted the measure, so a higher number means less need for supervision. While younger Hispanic resumes have slightly lower ratings, we do not find statistically significant differences between Hispanic and non-Hispanic candidates. The patterns across age are consistent with the ones for resume ratings, with Hispanics experiencing an increasing trend starting at age 55. Figure 10b shows the ratings for communication skills. Again, we do not find statistically significant differences between Hispanic and non-Hispanic candidates, and the patterns across age are consistent with the ones for resume ratings. If anything, communication skills for Hispanics increase with age.³⁴

As a second approach to study the effect of stereotypes of Hispanics, we randomly changed resume characteristics to highlight traits related to stereotypes, then used an interaction term in a regression to determine whether the characteristic differentially affected Hispanics compared to non-Hispanics. Specifically, for resume i rated by participant j , we run the following regression:

³³ We also asked whether or not they had the skills for the position.

³⁴ We also test if there are differences across the different types of Hispanic signals. We do not find statistically significant differences between Hispanic and non-Hispanic candidates.

$$(1) \text{ Rating}_{ij} = \alpha_j + \delta \text{Characteristic}_i + \beta \text{Hispanic}_i + \theta \text{Characteristic}_i \times \text{Hispanic}_i + u_{ij}$$

Where θ is the coefficient of interest. We use this approach to test the effect of having many children, being suited for manual labor on ratings, and knowing Spanish.

We use volunteering at a Parent Teacher Association (PTA) to signal having children, as in Correll et al. (2007). Table 6 presents these results. The PTA signal has a positive effect on ratings (Column 1). On average, resume ratings increase by 0.13 Likert points (2.7 percent of the baseline) for candidates with this signal. The interaction term between the PTA signal and Hispanic is positive, small (0.8 percent of the baseline), and statistically insignificant. These results hold if we restrict the sample to resumes with a female name (Column 2).

To test if the stereotype that Hispanics are suited for manual work affects ratings, we first exploit the notion that this stereotype is also associated with the idea that Hispanics often work as cooks. We check if previous job experience related to cooking and working in a restaurant affects ratings. Column 1 in Table 7 shows that having cooking or restaurant-related work experience in the resume decreases ratings by 0.35 Likert points (7.4 percent of the baseline). However, there is no differential effect on Hispanics. The interaction term is small (0.4 percent of the baseline) and insignificant.

Next, we expand the low-skill, manual labor signal by including previous job experience related to sales, being a cashier, and babysitting to the restaurant signal. The estimates in Column 2 show that the new low-skill signal has a negative effect on ratings of 0.24 Likert points (5.1 percent of the baseline). However, this effect is attenuated for Hispanics by 8.7 Likert points (1.8 percent of the baseline), significant at the ten percent level. This result is consistent with a setting where participants believe that it is more likely for Hispanics to work in low-skill jobs, thus penalizing them less for having these jobs on their resumes.

To further explore the previous result, we estimate the effect of having relevant job experience on ratings. We perform this test in two ways. First, we estimate the effect of having previous jobs on the resume that explicitly have the words “clerical” or “clerk” in their description. Column 3 in Table 7 presents these results. The words “clerical” or “clerk” on the job descriptions increase resume ratings by 0.46 Likert points (10.2 percent of the baseline). Hispanics benefit from an additional increase of 0.08 Likert points (1.7 percent of the baseline), although this result is

imprecise. Second, we estimate the effect of having detailed job descriptions on the resume. We count the number of characters in the job description section and define detailed job experience as having more characters in the section than the median (1134 characters). Column 4 in Table 7 shows that having detailed job experience on the resume increases ratings by 0.55 Likert points (12.5 percent of the baseline). Hispanics benefit from an extra increase of 0.09 Likert points (2.1 percent of the baseline), significant at the 5 percent level. These results are also consistent with participants believing that Hispanics are more likely to have low-skill jobs, as having relevant job experience grants them a premium in ratings.

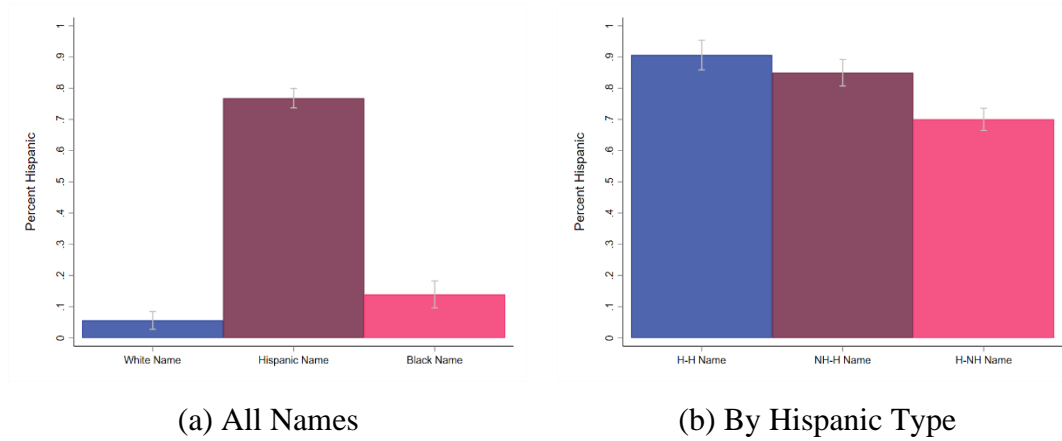
Finally, due to a growing Hispanic population, knowledge of Spanish is particularly useful in the United States, which could make Hispanic applicants more attractive to employers. Hispanics might be preferred because they are assumed to be bilingual, but we find that signaling knowledge of Spanish in the resume does not generally affect ratings and has no differential effect for Hispanic applicants (Table 7, column 5).

V.C.6. Additional Checks on the Hispanic Signal

Previously, in our pilot study, we checked to see what percentage of our participants could accurately identify applicants with Hispanic names as coming from underrepresented groups. However, because we did not want them to realize that they were involved in a study, we were unable to ask them more specific questions about the Hispanic status of names, and we were unable to determine what other attributes the names signaled (particularly socioeconomic status). To get these measurements, we ran an additional experiment on mTurk. We recruited 200 participants, showed them 40 randomly generated names that used the same White and Hispanic first and last name components we used in the main experiment, and asked them to identify the name's gender, race, ethnicity, and mother's education.³⁵ After removing participants who failed quality checks, we had 178 participants.

³⁵ We included four Black names to validate if the responses follow the pattern of similar studies that focus on Black people (Barlow & Lahey, 2018), which they do. We apply the same data quality checks to this sample as we did in the main study. Additionally, we ended this study with an explicit bias questionnaire (Cárdenas et al., 2010; Karl, 2011; Guimond et al., 2013) which finds that a minority of mTurk respondents are willing to admit to explicit bias against Hispanic people (26 percent answer four or more questions out of an eleven-question questionnaire displaying explicit bias against Hispanics).

Figure 11 Accuracy in Identifying Ethnicity from Names



Note: Data from Experiment 4 using the names from Experiment 3.

Figure 11 shows that an mTurk sample can infer ethnicity correctly from a name. When we consider any Hispanic name, participants indicated that the person was Hispanic 77 percent of the time. Like the results from Experiment 3, having both a Hispanic first and last name has the strongest ethnicity signal, and the Hispanic signal weakens for names with a non-Hispanic first name and Hispanic last name or a Hispanic first name and a non-Hispanic last name.

We also check whether specific names are responsible for misidentification (Appendix Figure A 4). When combined with a Hispanic last name, no Hispanic first name displays a systematic pattern of misidentification. However, when paired with a non-Hispanic last name, for five female names (Abril, Josefina, Martina, Pilar, and Ximena), participants think the name belongs to a non-Hispanic person in more than 50 percent of the time. We then test the robustness of the main results by excluding resumes that have one of these five first names. Appendix Figure A 5 presents these results. Compared to the main results presented in Figure 6, resume ratings for Hispanics are slightly lower, but we cannot reject that they are the same as the main results or different than ratings for non-Hispanics. It is important to note that these names were all chosen because they are popular Hispanic names that are not frequently given to non-Hispanic children. Thus, even if people do not recognize them as Hispanic, our results are still externally valid for this population. We can say less, however, about job applicants with frequently used names like Maria which may signal Hispanic when paired with a Hispanic last name but not with a non-Hispanic last name.

A final concern with using names to signal ethnicity is that names also signal beliefs about socioeconomic status in addition to ethnicity or race (see Barlow & Lahey (2018), Gaddis (2017) among others). Again, this concern is not a problem if we are testing the bundle of characteristics belonging to people with Hispanic names, but it could be problematic if we are interested in the effect of all Hispanic applicants. For example, if higher socioeconomic status parents are more likely to give their children names that do not signal Hispanic status. We test for this concern in the second mTurk study by asking participants how much education they think the mother of a person with a particular name has. We find that while participant perceptions of socioeconomic status do not match population distributions by race and ethnicity (they tend to assume a more highly educated population distribution), they perceive that White names have a higher socioeconomic status than do Hispanic names of any type (results available from authors). For example, they believe that mothers of almost half of the participants with names that do not denote race or religion have college or higher degrees, compared to under 30% of those with Hispanic first and last names.

We check if the estimates in Table 5 are robust to controlling for the socioeconomic status associated with a name using second-degree polynomials to control flexibly for the socioeconomic status of the first and last name. If anything, perceptions about socioeconomic status bias the effect of Hispanic ethnicity downwards; ratings increase for Hispanics by 0.1 Likert points (3 percent of the baseline). We find a similar effect for all Hispanic types.

VII. Discussion and Conclusion

We have combined public-use survey data from the Census/ACS and matched monthly CPS with four different laboratory experiments to demonstrate that, unlike the case for Black and White high school graduates, Hispanic and non-Hispanic high school graduates from US high schools are treated similarly across the lifecycle. General equilibrium survey results from national surveys show no clear labor market patterns by Hispanic status, though older Hispanics are less likely to have access to the internet or a laptop compared to other groups. Results from two laboratory resume experiments using a student sample and an HR sample suggest no differences in how resumes with Hispanic last names compared to those with non-Hispanic last names are treated overall and few differences when the sample is split by gender of the resume. The mTurk results from the third laboratory experiment similarly do not show differences in how resumes are rated

across the lifecycle, except perhaps for a slight preference for Hispanic compared to non-Hispanic applicants at much older ages.

Not only do we not find differences across the lifecycle, unlike research comparing Black and White members of the labor force (Lahey, 2018; Lahey & Oxley, 2021), we do not find overall differences between Hispanic and non-Hispanic job seekers. This lack of finding discrimination overall may not be surprising given modern audit study results that similarly find no statistical difference between the resume or online portions of audit studies, at least among relatively younger job seekers (Darolia et al., 2016; Decker et al., 2015; Kleykamp, 2009). These results additionally fit within a sociology literature that finds less or, in some cases, no discrimination against “Americanized” Latinx (e.g., Gaddis & Ghoshal, 2020) and converging educational and health outcomes for later generation Hispanics (e.g., Bean et al., 2015; Franzini et al., 2001). Given that our studies focus on US-born Hispanics for our empirical work and graduates from US high schools with US work history for our experimental treatments, it is likely that we are capturing the experiences of Hispanics who are assumed to be US citizens and likely assimilated US Citizens.

The next question is why we find no differences in the general equilibrium results across age and in how hypothetical applicants are rated by ethnicity. An obvious explanation for the lack of nationally representative survey differences is that there is measurement error in the nationally representative surveys regarding who takes these surveys and who identifies as Hispanic (Antman et al. 2020; Duncan & Trejo, 2011; Hull, 2017; O’Hare, 2019). However, given that we limit to US citizens with a high school degree, this problem may be less prevalent than it would be had we looked at the Hispanic vs. non-Hispanic population as a whole. That said, measurement error in the general equilibrium survey data does not explain the lack of differences by ethnicity across the lifespan in our three experiments.

To explain the lack of different treatment we find in the experiments, the most worrisome suggestion is that our participants, unlike hiring managers going through the actual hiring process, simply do not pay attention to signals of name and age as they would were they not in an experiment. However, we show that participants in all three experiments do look at the names and have a sense of the hypothetical applicants’ general age. Experiments 1 and 2 show directly in Table 1 that the participants view the areas of interest for name and for date of high school graduation. In Experiment 3, participants in our pilot report, on average, that Hispanic applicants

are minority applicants and applicants over 40 are over the age of 40. Also, resume characteristics that should be useful for rating resumes (relevant job experience and skills) are highly significant and contribute to predict ratings. Because of these results, and after eliminating mTurk participants who fail standard quality checks (out of US IP addresses, taking too little time to complete the survey, failing to answer attention check questions correctly, among others), we are confident that participants are seeing the signals of ethnicity and age.

A less worrisome possibility is that participants do not consider people with non-Hispanic first names to truly be “Hispanic,” that is, they consider people with Hispanic heritage and US first names to be equivalent to non-Hispanic White people, particularly in the Southwest where the first two experiments take place. Indeed, results from the mTurk checks mentioned in the previous paragraph suggest a stronger identification of minority group status when both the first and last name of the applicant are Hispanic, although even with these groups, the majority of participants identify people with Hispanic last names and non-Hispanic first names as minorities on average. We provide further evidence that names convey ethnicity with a fourth experiment where we directly asked participants specific questions about Hispanic status; these results on Hispanic status and names are similar to those in Gaddis (2017). That said, not all Hispanic people in the United States have first and last names that indicate their Hispanic status. As such, our experimental results are more externally valid for the Hispanic population than would be results that limit to just those with Hispanic first and last names.

Another possibility is that positive and negative stereotypes about Hispanic workers balance out on average in our samples, leading to overall null results by ethnicity and age. In the mTurk experiment, we included signals that reinforce or contradict different stereotypes that people have about Hispanic workers compared to non-Hispanic workers. We find suggestive evidence that Hispanic women may be negatively affected by the belief that they have multiple children. We also find evidence consistent with participants believing that it is more likely for Hispanics to work in low-skill jobs, thus penalizing them less for having these jobs on their resumes and granting them a premium for relevant job experience.

One final explanation for the lack of discrimination in these studies is that our experiments limited us to studying one educational sub-population, similar to the limits of audit studies. There is likely to be different selection into the high school graduate sample. For example, if we assume

that the underlying distribution of worker quality is the same across the two groups, then the fact that there are more Hispanic adults without a high school degree than there are non-Hispanic adults without a high school degree (potentially because of pre-labor market discrimination or lack of opportunities) would mean that the average underlying quality of Hispanic high school graduates would be higher than that of non-Hispanic high school graduates.³⁶ In this sense, although we do not see discrimination based on observable characteristics, there might still be differences in underlying unobservable-to-the-researcher worker ability. Similarly, because we do not have a full hiring package, it is possible that there is discrimination but that it is showing up in lower wage offers and not lower hireability ratings; for example, James and DelCastillo (1992)'s in-person audit found lower wage offers for Hispanic auditors, but the difference was not statistically significant.³⁷

To be clear, our results *do not* imply that there is no discrimination against Hispanics. Our experimental evidence suggests that Hispanic and non-Hispanic high school graduates are treated similarly across the lifecycle when the resumes of middle-aged and older candidates to hire are assessed. These results do not imply that there is no discrimination in terms of the post-interview hiring decision; employers could discriminate on the basis of skin color, accent, or other traits at the interview stage, or they could have affirmative action heuristics for interviews that balance out discrimination but do not use those heuristics when it comes to actually choosing a candidate. Nor does it imply that there is no discrimination in terms of the wages paid to Hispanic and non-Hispanic high school graduates. Future research is needed to test if the absence of discrimination suggested by our results carries through the rest of the hiring process. Notably, while there could be no discrimination in screening or hiring, the observational data still show a wage gap between Hispanics and non-Hispanics, particularly among men. Previous work by Trejo (1997), Chetty et al. (2020), Hirsch & Winters (2014), among others, also document these income gaps, suggesting

³⁶ For example, Bean et al., (2015) suggest that first generation children of Mexican parents are more likely to enter the labor market rather than college when the immigrant mother does not have a green card, suggesting short term labor needs outweigh the ability to invest in education.

³⁷ Also, by design we focus on Hispanic cohorts born in the US up to 1984. Thus, we focus on individuals who are mainly children of immigrants and not immigrants themselves. We do not capture the effects on the large influx of Hispanic immigrants in the late 1980s and 1990s as documented by Hanson et al. (2023) or their children. Patterns may change as the younger cohorts in our study interact with a larger number of immigrants as they age.

that even if there is no discrimination at the hiring margin, that may be because employers believe they can pay lower salaries to Hispanics on average.

As a final caution, our results do not reflect conditions for those with less than a high school degree (14% of the native-born Hispanic population and 7% of the native-born non-Hispanic population age 25-75 in the 2019 ACS) and those with associates or higher degrees (33% of the native-born Hispanic population and 45.5% of the native-born non-Hispanic population). From a policy perspective, if discrimination against Hispanics is an issue for the less and more educated populations, it could impede the social mobility of the next generations of Hispanics in the US. For example, Alonso-Villar et al. (2012) find higher occupational segregation by race and ethnicity for both less and more educated groups than for those with a high school degree but no additional degree. Future research is needed to test hiring discrimination for these segments of the labor force.

Declarations

The data and code that support the findings of this study are available from the authors upon request.

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Works Cited

- Alonso-Villar, O., Del Rio, C., & Gradin, C. (2012). The Extent of Occupational Segregation in the United States: Differences by Race, Ethnicity, and Gender. *Industrial Relations*, 51(2), 179–212.
- Antman, F. M., Duncan, B., Trejo, S. J. (2020). Ethnic attrition, assimilation, and the measured health outcomes of Mexican Americans. *Journal of Population Economics*, 33, 1499-1522.
- Arechar, A., Simon G., and Lucas M. (2018). “Conducting Interactive Experiments online.” *Experimental Economics*, 21: 99-131.
- Barlow, M. R., & Lahey, J. N. (2018). What Race Is Lacey? Intersecting Perceptions of Racial Minority Status and Social Class. *Social Science Quarterly*, 99(5), 1680-1698.
- Bean, F. D., Brown, S. K., Bachmeier, J. D., Brown, S., & Bachmeier, J. (2015). *Parents Without Papers: The Progress and Pitfalls Of Mexican American Integration*. Russell Sage Foundation.
- Bendick Jr, M., Jackson, C. W., Reinoso, V. A., & Hodges, L. E. (1991). Discrimination Against Latino Job Applicants: A Controlled Experiment. *Human Resource Management*, 30(4), 469-484.
- Blair I.V., Havranek E.P., Price D.W., Hanratty R, Fairclough D.L., Farley T, Hirsh H.K., & Steiner J.F. (2013). Assessment of biases against Latinos and African Americans among primary care providers and community members. *American Journal of Public Health*, 103(1), 92-8.
- Bleakley, H., Ferris, A. E., & Fuhrer, J. C. (1999). New Data on Worker Flows During Business Cycles. *New England Economic Review*, July, 49-76.
- Brown, T. H., & Warner, D. F. (2008). Divergent Pathways? Racial/Ethnic Differences in Older Women’s Labor Force Withdrawal. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 63(3), S122-S134.
- Bureau of Labor Statistics (BLS). (2020). *Labor Force Statistics from the Current Population Survey*. <https://www.bls.gov/cps/cpsaat11.htm>. Retrieved on October 2, 2022.

- Cappelli, P. (2019). Your approach to hiring is all wrong. *Harvard Business Review*, 97, 48–58.
- Cárdenas, M., Meza, P., Lagues, K., & Yañez, S. (2010). Adaptación y Validación de la Escala de Orientación a la Dominancia Social (SDO) en una Muestra Chilena. *Universitas Psychologica*, 9(1), 161-168.
- Chetty, R., Hendren, N., Jones, M. R., & Porter, S. R. (2020). Race and Economic Opportunity in the United States: An Intergenerational Perspective. *The Quarterly Journal of Economics*, 135(2), 711-783.
- Correll, S., Benard, S., & Paik, I. (2007). Getting a Job: Is There a Motherhood Penalty? *American Journal of Sociology*, 112(5), 1297-1339. <https://doi.org/10.1086/511799>.
- Cross, H., Kenney, G. M., Mell, J., & Zimmermann, W. (1990). *Employer Hiring Practices: Differential Treatment of Hispanic and Anglo Job Seekers*. Washington, DC: The Urban Institute Press.
- Darolia, R., Koedel, C., Martorell, P., Wilson, K., & Perez-Arce, F. (2016). Race And Gender Effects on Employer Interest in Job Applicants: New Evidence from a Resume Field Experiment. *Applied Economics Letters*, 23(12), 853-856.
- de Quidt, J., Haushofer, J., & Roth, C. (2018). Measuring and Bounding Experimenter Demand. *American Economic Review*, 108(11), 3266-3302.
- Decker, S. H., Ortiz, N., Spohn, C., & Hedberg, E. (2015). Criminal Stigma, Race, and Ethnicity: The Consequences of Imprisonment for Employment. *Journal of Criminal Justice*, 43(2), 108-121.
- Dennis, S. A., Goodson, B. M., & Pearson, C. (2019). Virtual Private Servers and The Limitations of IP-Based Screening Procedures: Lessons from The Mturk Quality Crisis of 2018. *Available at SSRN 3233954*.
- Dixon, J. C., & Rosenbaum, M. S. (2004). Nice to Know You? Testing Contact, Cultural, and Group Threat Theories of Anti Black and Anti Hispanic Stereotypes. *Social Science Quarterly*, 85(2), 257-280.
- Dong, Q., & Murrillo, A. P. (2007). The Impact of Television Viewing on Young Adults' Stereotypes Towards Hispanic Americans. *Human Communication*, 10(1), 33-44.
- Duncan, B., & Trejo, S. J. (2011). Intermarriage and the Intergenerational Transmission of Ethnic Identity and Human Capital for Mexican Americans. *Journal of Labor Economics*, 29(2), 195-227.

- Feldman, M. E., & Weseley, A. J. (2013) Which Name Unlocks The Door? The Effect of Tenant Race/Ethnicity on Landlord Response. *Journal of Applied Social Psychology*, 43(2), E416-E425.
- Flood, S., King, M., Rodgers, R., Ruggles, S., Warren, J. R., & Westberry, M.. *Integrated Public Use Microdata Series, Current Population Survey: Version 9.0 [dataset]*. Minneapolis, MN: IPUMS, 2021. <https://doi.org/10.18128/D030.V9.0>.
- Flores, A., López, G., & Radford, J. (2017). *Facts on US Latinos, 2015: Statistical Portrait of Hispanics in the United States. Trend data*. <http://www.pewhispanic.org/2017/09/18/facts-on-u-s-latinos/>.
- Franzini L, Ribble JC, Keddie AM. Understanding the Hispanic Paradox. (2001) *Ethnicity & Disease, Inc. 11(3): 496–518*.
- Gamboa, S. (2015, June 16). *Donald Trump Announces Presidential Bid By Trashing Mexico, Mexicans*. NBC News.
- Gaddis, S. M. (2017). How Black are Lakisha and Jamal? Racial Perceptions from Names Used in Correspondence Audit Studies. *Sociological Science*, 4, 469-489.
- Gaddis, S. Michael & Ghoshal, Raj, (2020). Dynamic Racial Triangulation: Examining the Racial Order Using an Experiment on Discrimination by White Millennials. *SSRN Electronic Journal*, <http://dx.doi.org/10.2139/ssrn.3022208>.
- Gneezy, U., & Imas, A. (2017). Chapter 10 - Lab in the Field: Measuring Preferences in the Wild. In A. V. Banerjee & E. Duflo (Eds.), *Handbook of Economic Field Experiments* (Vol. 1, pp. 439-464). North-Holland. <https://doi.org/https://doi.org/10.1016/bs.hefe.2016.08.003>
- Guimond, S., Crisp, R. J., De Oliveira, P., Kamiejski, R., Kteily, N., Kuepper, B., Lalonde, R. N., Levin, S., Pratto, F., & Tougas, F. (2013). Diversity Policy, Social Dominance, and Intergroup Relations: Predicting Prejudice in Changing Social and Political Contexts. *Journal of Personality and Social Psychology*, 104(6), 941.
- Hanson, A., & Santas, M. (2014). Field Experiment Tests for Discrimination Against Hispanics in the US Rental Housing Market. *Southern Economic Journal*, 81(1), 135-167.
- Hanson, G., Orrenius, P., & Zavodny, M. (2023). US Immigration from Latin America in Historical Perspective. *Journal of Economic Perspectives*, 37(1), 199-222.
- Hauser, D., Paolacci, G., & Chandler, J. (2019). Common Concerns with MTurk as a Participant Pool: Evidence and Solutions. In F. R. Kardes, P. M. Herr, & N. Schwarz (Eds.), *Handbook of Research Methods in Consumer Psychology*, 319–337.

- Hirsch, B. T., & Winters, J. V. (2014). An Anatomy of Racial and Ethnic Trends in Male Earnings in the US. *Review of Income and Wealth*, 60(4), 930-947.
- Holmqvist, K., Nyström, M., Andersson, R., Dewhurst, R., Jarodzka, H., & Van de Weijer, J. (2011). *Eye tracking: A Comprehensive Guide to Methods and Measures*. OUP Oxford.
- Horton, J. J., Rand, D. G., & Zeckhauser, R. J. (2011). The Online Laboratory: Conducting Experiments in a Real Labor Market. *Experimental Economics*, 14, 399-425.
- Hull, M. C. (2017). The academic progress of Hispanic immigrants. *Economics of Education Review*, 57, 91-110. <https://doi.org/https://doi.org/10.1016/j.econedurev.2017.02.002>
- Hungerford, T., Rassette, M., Iams, H., & Koenig, M. (2001). Trends in the Economic Status of the Elderly, 1976-2000. *Social Security Bulletin*, 64(3), 12-22.
- Immigration Reform and Control Act of 1986. - 99th Congress (1985-1986): (1986, November 6). <https://www.congress.gov/bill/99th-congress/senate-bill/1200>.
- Jackson, L. (1995). Stereotypes, Emotions, Behavior, and Overall Attitudes Toward Hispanics by Anglos. *Personality and Social Psychology Bulletin*, 10.
- Johnson, D., & Ryan, J. B. (2020). Amazon Mechanical Turk Workers can Provide Consistent and Economically Meaningful Data. *Southern Economic Journal*, 87(1), 369-385.
- James, F., & DelCastillo, S. (1992). Measuring Job Discrimination: Hopeful Evidence from Recent Audits. *Harvard Journal of African American Public Policy*, 1(1), 33-53.
- Jones, M. (1991). Stereotyping Hispanics and Whites: Perceived Differences in Social Roles as a Determinant of Ethnic Stereotypes. *The Journal of Social Psychology*, 131(4), 469-476.
- Karl, K. (2011). Politics & Prejudice Toward Hispanics: Assessing the Validity of Symbolic Measures. In *APSA 2011 Annual Meeting Paper*.
- Kennedy, R., Clifford, S., Burleigh, T., Waggoner, P. D., Jewell, R., & Winter, N. J. (2020). The Shape of and Solutions to the MTurk Quality Crisis. *Political Science Research and Methods*, 8(4), 614-629.
- Kleykamp, M. (2009). A Great Place to Start? The Effect of Prior Military Service On Hiring. *Armed Forces & Society*, 35(2), 266-285.
- Lahey, J. N., & Beasley, R. A. (2009). Computerizing Audit Studies. *Journal of Economic Behavior & Organization*, 70(3), 508–514. <https://doi.org/10.1016/j.jebo.2008.02.009>
- Lahey, J. N., & Oxley, D. R. (2021). Discrimination at the Intersection of Age, Race, and Gender: Evidence from an Eye-Tracking Experiment. *Journal of Policy Analysis and Management*.

- Markert, J. (2004). "The George Lopez Show": The Same Old Hispano? *Bilingual Review/La Revista Bilingüe*, 28(2),148-165.
- Mendez, M. S., & Grose, C. R. (2018). Doubling Down: Inequality in Responsiveness and the Policy Preferences of Elected Officials. *Legislative Studies Quarterly*, 43(3), 457-491. <https://doi.org/10.1111/lsq.12204>.
- Moen, P., Flood, S. M., & Wang, J. (2022). The Uneven Later Work Course: Intersectional Gender, Age, Race, and Class Disparities. *The Journals of Gerontology: Series B*. 77(1), 170-180, <https://doi.org/10.1093/geronb/gbab039>.
- Mummolo, J., & Peterson, E. (2019). Demand Effects In Survey Experiments: An Empirical Assessment. *American Political Science Review*, 113(2), 517-529.
- O'Hare, W. P. (2019). Census Coverage of the Hispanic Population. In W. P. O'Hare (Ed.), *Differential Undercounts in the U.S. Census: Who is Missed?* (pp. 71-82). Springer International Publishing. https://doi.org/10.1007/978-3-030-10973-8_7.
- Pager, D., Western, B., & Bonikowski, B. (2009). Discrimination in a Low-Wage Labor Market: A Field Experiment. *American Sociological Review*, 74(5), 777–799. <https://doi.org/10.1177/000312240907400505>.
- Quillian, L., Pager, D., Hexel, O., & Midtbøen, A. H. (2017). Meta-Analysis Of Field Experiments Shows No Change In Racial Discrimination In Hiring Over Time. *Proceedings of the National Academy of Sciences*, 114(41), 10870-10875.
- Ramírez Berg, C. (1990). Stereotyping in Films in General and of the Hispanic in Particular. *The Howard Journal of Communications*, 2(3), 286-300. <https://doi.org/10.1080/10646179009359721>.
- Rose, J. (2022, August 3). *Talk of 'invasion' moves from the fringe to the mainstream of GOP immigration message*. NPR.
- Ruggles, S., Flood, S., Sobek, M., Brockman, D., Cooper, G., Richards, S., & Schouweiler, M.. *IPUMS USA: Version 13.0 [dataset]*. Minneapolis, MN: IPUMS, 2023. <https://doi.org/10.18128/D010.V13.0>
- Ruiz, J. M., Steffen, P., & Smith, T. B. (2013). Hispanic Mortality Paradox: A Systematic Review and Meta-Analysis of the Longitudinal Literature. *American Journal of Public Health*, 103(3), e52-e60. <https://doi.org/10.2105/AJPH.2012.301103>.
- Trejo, S. J. (1997). Why do Mexican Americans Earn Low Wages?. *Journal of Political Economy*, 105(6), 1235-1268.

- Tomaskovic-Devey, D., Thomas, M. & Johnson, K. 2005. "Race and the Accumulation of Human Capital across the Career: A Theoretical Model and Fixed-Effects Application." *American Journal of Sociology*, 111(1), 58-89.
- Turner, M. A., Mikelsons, M., & Edwards, J., (1991a). Analysis of Steering in the Housing Discrimination Study. *Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.*
- Turner, M. A., Struyk, R. J., & Yinger, J. (1991b). Housing Discrimination Study, Synthesis, In editor R. J. Struyk & J. Yinger (Eds.). *Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.*
- USA Facts. (2022). *The Hispanic Population Has Quadrupled in the Past Four Decades. It is Also Becoming More Diverse.* USA Facts. Retrieved May 5, 2022, from <https://usafacts.org/articles/demographics-hispanic-americans/>.
- White, A. R., Nathan, N. L., & Faller, J. K. (2015). What Do I Need to Vote? Bureaucratic Discretion and Discrimination by Local Election Officials. *American Political Science Review*, 109(1), 129-142.
- Wojtkiewicz, R. A., & Donato, K. M. (1995). Hispanic Educational Attainment: The Effects of Family Background and Nativity. *Social Forces*, 74(2), 559-574. <https://doi.org/10.2307/2580492>.
- Yinger, J. (1991). Acts of Discrimination: Evidence from the 1989 Housing Discrimination Study. *Journal of Housing Economics*, 1(4), 318-346.
- Yousef, O. (2022, May 17). *The 'great replacement' conspiracy theory isn't fringe anymore, it's mainstream.* NPR.
- Zong, Jie & Batalova, Jeanne. (2019). *How Many Unauthorized Immigrants Graduate from U.S High Schools Annually?* Washington, DC: Migration Policy Institute.

Table 1 Summary Statistics for Experiments 1 and 2

	Experiment 1		Experiment 2	
	Mean	SD	Mean	SD
Resume Characteristics				
Female	0.50		0.50	
Hispanic	0.13		0.12	
Age	56.1	11.7	56.7	12.0
Participant Characteristics				
Female	0.56		0.81	
White	0.89		0.85	
Asian	0.07		0.01	
Black	0.05		0.15	
Hispanic	0.15		0.19	
Age	21.97	2.83	44.15	11.43
Ratings				
Likert (1-7)	4.63	1.4	4.63	1.44
Eye-tracking				
Seconds spent: total	16.28	10.2	15.45	9.35
outside	3.01	3.77	0.37	0.69
employment history	4.9	5.75	5.82	4.74
name	0.18	0.53	0.09	0.2
high school	1.2	1.78	0.43	0.67
years employed	0.49	1.1	0.76	1.01
graduation year	0.02	0.14	0.05	0.14
other	0.22	0.56	0.2	0.51
education	0.21	0.46	0.27	0.37

Notes: In the student sample, there are 5,425 resumes for the non-eyetracking statistics and 4,475 resumes for the eyetracking statistics, other than seconds spent total which has 5,109 resumes. In the HR sample, there are 2,680 resumes for the non-eyetracking statistics and 2,624 resumes for the eye-tracking statistics, except seconds spent total which has 2,637 resumes.

Table 2 Effect of Ethnicity on Resume Ratings

Likert (1-7) Hireability Rating		
Sample:	(1) Student	(2) HR
Hispanic name	-0.7369 (1.4153)	-1.4657 (2.4916)
Age in Resume	-0.0393** (0.0187)	-0.0515 (0.0312)
Hispanic × Age in Resume	0.0325 (0.0518)	0.0676 (0.0921)
Age in Resume Squared	0.0003** (0.0002)	0.0004 (0.0003)
Hispanic × Age in Resume Squared	-0.0003 (0.0005)	-0.0007 (0.0008)
Observations	5,425	2,416

Note: These are results from Experiments 1 (column 1) and 2 (column 2) interacting Hispanic status of names on resumes with ages on resume as indicated by date of high school graduation. Robust standard errors clustered on participant are in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Table 3 Summary Statistics of mTurk Participants

Proportion of women	0.555 (0.497)	Hiring experience	0.621 (0.485)
Age	41.697 (12.127)	Managerial experience	0.675 (0.469)
Proportion of White	0.825 (0.380)	Number of children	0.790 (1.195)
Proportion Hispanics	0.104 (0.306)	Worked last week	0.919 (0.273)
Less than college	0.367 (0.482)	Income above \$50,000	0.444 (0.497)
College	0.445 (0.497)	Up to 5 years of work experience	0.126 (0.332)
More than college	0.188 (0.391)	6-15 years of work experience	0.326 (0.469)
Human resources experience	0.298 (0.458)	More than 15 years of work experience	0.548 (0.498)

Notes: This table presents summary statistics for the final sample of 739 mTurk workers from Experiment 3. Standard deviations in parentheses.

Table 4 Participants' Ability to Assess Age and Ethnicity from Resumes

Panel A: Assessing Age From Resumes		
	Participant believes candidate has less than 40 years	Participant believes candidate has 40 years or more
Less Than 40 years	0.895	0.105
40 or More	0.312	0.688
Panel B: Assessing Ethnicity from Resumes		
	No Minority	Minority
Non Hispanic	0.926	0.074
Hispanic First and Last Name	0.329	0.671
Non-Hispanic First Hispanic Last	0.431	0.569
Hispanic First Non-Hispanic Last	0.563	0.437
Any Hispanic Signal	0.420	0.580

Notes: This table presents how the participants in the pilot wave infer age and ethnicity from the resumes in Experiment 3. The sample is 739 participants, 22,170 resumes.

Table 5 Effect of Ethnicity on Resume Ratings – mTurk Sample

	(1)	(2)
	<u>A. Any Hispanic Type</u>	
Any Hispanic Type	0.0322 (0.0247) [0.0069]	0.0268 (0.0203) [0.0057]
	<u>B. By Hispanic Type</u>	
Hispanic First and Last Name	-0.0033 (0.0341) [-0.0006]	0.0050 (0.0289) [0.0011]
Non-Hispanic First Name Hispanic Last Name	0.0549 (0.0443) [0.0117]	0.0476 (0.0353) [0.0102]
Hispanic First Name Non-Hispanic Last Name	0.0789* (0.0452) [0.0169]	0.0487 (0.0378) [0.0104]
Baseline Rating	4.6809	
Control for resume quality	X	

Notes: Data are from Experiment 3. Standard errors clustered by participants are in parentheses. Percent change from the baseline is in brackets. The Likert resume rating ranges from 1 (least hireable) to 7 (most hireable). Each Panel and column presents results for a separate OLS regression. The baseline in Panel B is the average rating for non-Hispanic resumes. Estimates control for participant fixed effects. The sample size is 22,170 resumes.

*** p<0.01, ** p<0.05, * p<0.1

Table 6 Testing the Stereotype that Hispanics have Multiple Children in Resume Ratings

	Full Sample	Female Resumes
Any Hispanic Type	0.0288 (0.0264) [0.0062]	0.0413 (0.0371) [0.0088]
PTA Signal	0.1249*** (0.0369) [0.0267]	0.1053** (0.0508) [0.0224]
Any Hispanic Type × PTA Signal	0.0380 (0.0804) [0.0081]	0.0439 (0.1171) [0.0093]
Baseline	4.6809	4.7089

Notes: Data are from Experiment 3. Standard errors clustered by participant are in parentheses. Percent with respect to baseline is in brackets. Estimates control for participant fixed effects. The sample size is 22,170 resumes. *** p<0.01, ** p<0.05, * p<0.1

Table 7 Heterogeneity in Resume Ratings to Job History Content

Job Signal =	Cooking/ Restaurant Experience	Low-Skill Job Experience	Clerical/ Clerk in Job Description	Detailed Job Experience	Spanish Knowledge
Any Hispanic Type	0.0315 (0.0267) [-0.0067]	0.0023 (0.0310) [-0.0005]	-0.0048 (0.0348) [-0.0011]	-0.0049 (0.0341) [-0.0011]	0.0329 (0.0262) [-0.007]
Job Signal	-0.3466*** (0.0358) [-0.0735]	-0.2425*** (0.0237) [-0.0509]	0.4581*** (0.0232) [-0.1024]	0.5511*** (0.0238) [-0.1251]	0.0081 (0.0343) [-0.0017]
Any Hispanic Type × Job Signal	-0.0198 (0.0850) [-0.0042]	0.0868* (0.0483) [-0.0182]	0.0778 (0.0476) [-0.0174]	0.0940** (0.0467) [-0.0213]	-0.0064 (0.0775) [-0.0014]
Baseline	4.7128	4.7652	4.4813	4.4018	4.6809

Notes: Data are from Experiment 3. Standard errors clustered by participant in parentheses. Percent with respect to baseline in brackets. Estimates control for participant fixed effects. The sample size is 22,170 resumes.

*** p<0.01, ** p<0.05, * p<0.1